

Online Methodological Supplement for
“Supply Portfolio Concentration in Outsourced Knowledge-Based Services”

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In this supplement we explain the patent and attorney data employed for identifying the supplier used in outsourced patent legal work, and report on additional checks and data work we performed in this regard.

U.S. patent law requires that only a registered patent attorney (or patent agent) may represent an inventor at the patent office. Inventors may represent themselves, but this is highly unlikely in the corporate setting of the current study. Patent attorneys are required to have technical training (a minimum of a bachelor’s degree or equivalent training) and to pass the patent bar exam in order to be admitted to the patent bar.

Maintaining a current address with the USPTO’s Office of Enrollment and Discipline (OED) is a requirement for being a registered patent attorney. The OED periodically “audits” the addresses on its roster, and routinely de-registers attorneys who do not respond to the mailed request sent to their roster address. We use these OED rosters published periodically by the USPTO to identify employers of patent attorneys.

We employ the “Attorney or Agent” field on the front page of patents to identify who performed the legal work on any given patent. This field contains information filled out on the Fee Transmittal form, after the patent is granted, in accordance with section 1309 of the Manual of Patent Examining Procedure (MPEP), namely:

MPEP 1309

The Fee(s) Transmittal form provides a space (item 2) for the person submitting the base issue fee to indicate, for printing, (1) the names of up to three registered patent attorneys or agents or, alternatively, (2) the name of a single firm, which has as a member at least one registered patent attorney or agent, and the names of up to two registered patent attorneys or agents. If the person submitting the issue fee desires that no name of practitioner or firm be printed on the patent, the space on the Fee(s) Transmittal form should be left blank. If no name is listed on the form, no name will be printed on the patent.

We found that the “Attorney or Agent” field typically lists client company attorneys by name, but lists law firms usually only by firm name. These law firm names were the primary source of data for identifying the supplier for patents in our sample. In a small fraction of cases (~15%), a law firm’s attorney(s) is/are listed in the “Attorney or Agent” field without the firm name. Thus, when no law firm name was listed, we checked with the OED roster if the attorney(s) on the patent were employed by a law firm, and then coded the supplier from that source.

To assure ourselves of the quality of the data from the “Attorney or Agent” field, we manually cross-checked small random samples of patents with the Patent Application Information Retrieval (PAIR) database of the USPTO. The PAIR database contains the attorney and correspondence address specified in the patent application (or updated subsequently). Because these PAIR data record which attorney(s) or firm/office holds the legal power of attorney to represent the inventor at the patent office (see Manual of

Patent Examining Procedure: Chapter 400), they can credibly convey who was responsible for prosecuting the patent. In turn, we found that the PAIR data closely match the “Attorney or Agent” data used in our research.

Specifically, we manually cross-checked this match for two random samples of 100 patents drawn, respectively, from: (1) all firm patents and (2) only outsourced patents. We found in the first case that 95 of 100 patents had a match between the information listed on PAIR and the “Attorney or Agent” field. In the remaining 5 cases, a law firm was listed on the patent but a (client) company’s address and attorney were listed on PAIR. However, each of these patents either had a new power of attorney executed (3 patents) or a change in ownership (2 patents) subsequent to grant, which explains the mismatch with PAIR data. In other words, the PAIR data contain the current holder of the power of attorney (POA), which may in some cases be different from the POA holder during patent prosecution. In the second sample of “outsourced” patents, we found that 90 of 100 patents had a match with PAIR data, and 5 more patents listed the company’s attorney and address, as above. In 4 other cases, a different law firm was listed on PAIR, but the PAIR data had again been changed through a new power of attorney subsequent to patent grant. One mismatch remains unexplained. We conclude that the law firm or attorney(s) listed in the “Attorney or Agent” field were responsible for the patent prosecution work in most patents, and the errors – if they exist – are quite small.

Another feature of the data is that for 12% of patents in our sample, the “Attorney or Agent” field was blank. Since our analysis is at the firm-year level, these missing data at the patent level have the potential to have a much larger impact on our analyses. By manually updating supplier information (from PAIR) for some of these patents, we reduced the number of firm-years with missing data by half. During this process, we found that 73% of the patents with blank “Attorney or Agent” fields were processed internally by client firms (the rest being outsourced), which is approximately the same rate as other coded patents. Rather than make assumptions about the remaining missing data, we only retained firm-year observations in the sample where we know the status of at least 90% of patents (our results are robust to 95% and 85% cut-offs).