

In this paper, we quantitatively characterize the mechanism of collaborative knowledge creation at the individual researcher level a` la Berliant and Fujita (2008) by using Japanese patent data. The key driver for developing new ideas is found to be the exchange of differentiated knowledge among collaborators. To stay creative, inventors seek opportunities to shift their technological expertise to unexplored niches by utilizing the differentiated knowledge of new collaborators in addition to their own stock of knowledge. In particular, while collaborators' differentiated knowledge raises all the average cited count, average (technological) novelty and the quantity of patents for which an inventor contributes to the development, it has the largest impact on the average novelty among the three.