

# **Patents to Products: Innovation, Product Creation, and Firm Growth**

## **Abstract**

How do patents relate to product innovation?

To study this question, we construct a new patent-to-product data set combining data from the U.S. Patent and Trademark Office with the RMS Nielsen data covering the universe of firms in the consumer product goods sector.

Using the textual analysis of patent documents together with product descriptions from Nielsen data, we link specific patents to finely defined product categories within firms and time periods.

Our findings indicate that there is a substantial amount of product innovation that comes from firms that have never patented.

Nevertheless, for patenting firms, standard patent-based measures of innovation are strongly related to product innovation measured both by the quantity and the quality of new products.

We find that market leaders use patents differently than followers.

In particular, patents of large firms have a weaker association with the quality and quantity of product innovations.

Nevertheless, larger firms are able to generate higher revenues from those patents.

This is largely because their patents are better at deterring competition than those from smaller firms.

We decompose the value of a patent considering these effects in our theoretical framework.

We show that the value of a patent increases as firms become market leaders.

This increase is mostly driven by an increasing value derived from protective patenting as opposed to productive patenting.

The paper is joint work with David Argente (FRB of Minneapolis) , Sara Moreira (Kellogg), Douglas Hanley (University of Pittsburg)

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