

## **Preface**

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Harvard Economist Zvi Griliches famously sought, but failed to find, the intuitive connection between R&D and economic growth. But neither the data nor the methods required were available in his day. Now more advanced methods are available, and they show correspondences quite unlike he, or others since, counted on being discovered.

This is a supporting document for

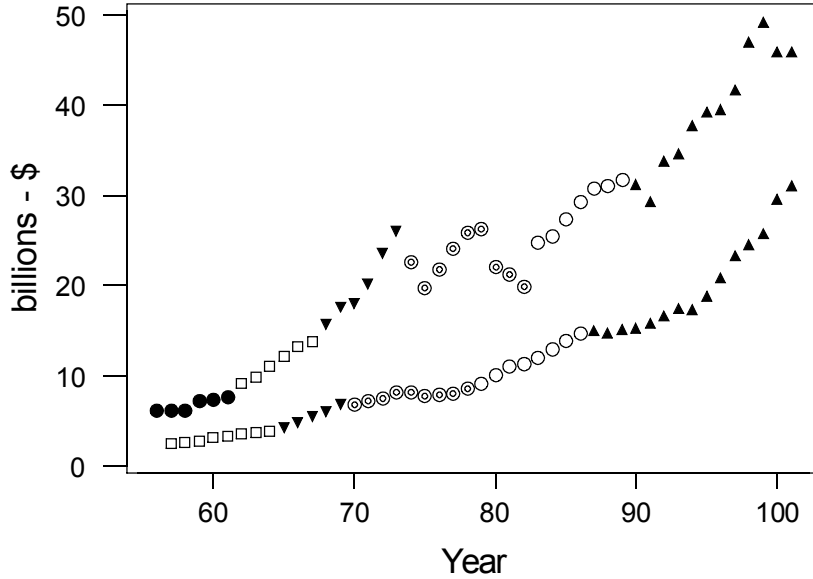
'Innovation Metrics for Economic Growth'  
Working Paper No.5, (2009)  
Technology Matters, Chicago  
[www.techmatt.com](http://www.techmatt.com)

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# Connecting Innovation Metric to R&D (1)

## All Durable Goods Firms

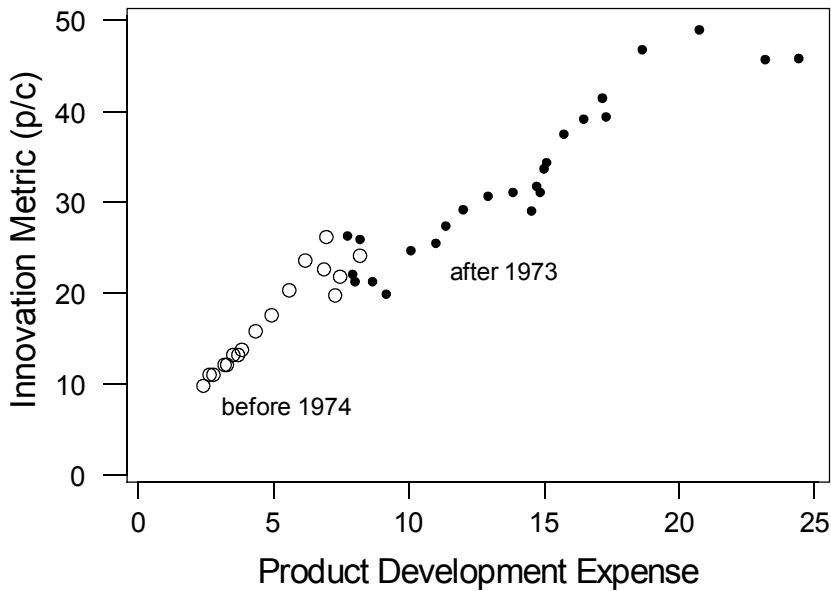
Upper - Aggregate Innovation Metric (p/c)  
 Lower - Product Development Expense



Upper and lower series are derived from different data, in different units, yet their segmental patterns key together when 3 - 4 years elapses between cause (lower) and effect (upper).

shift lower data forwards and plot against upper data

### Innovation Productivity



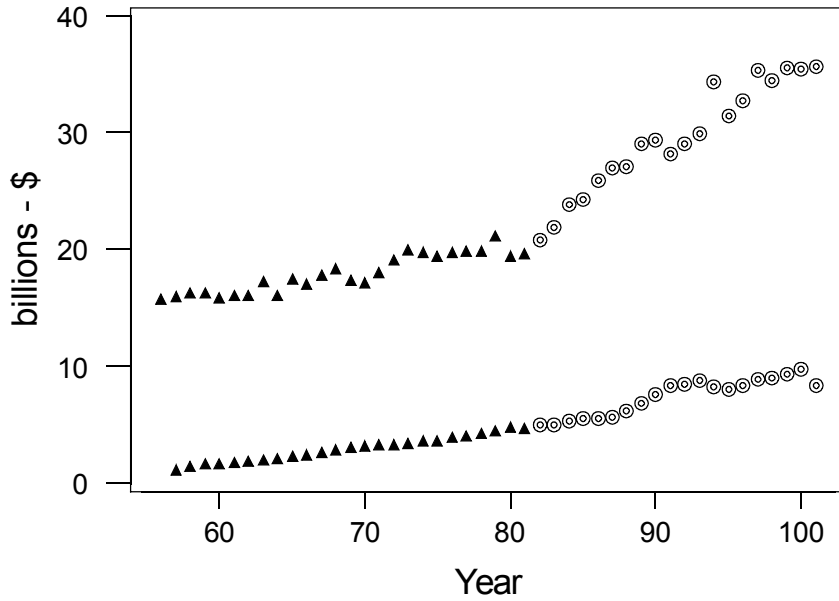
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## Connecting Innovation Metric to R&D (2)

### All Non-Durable Goods Firms

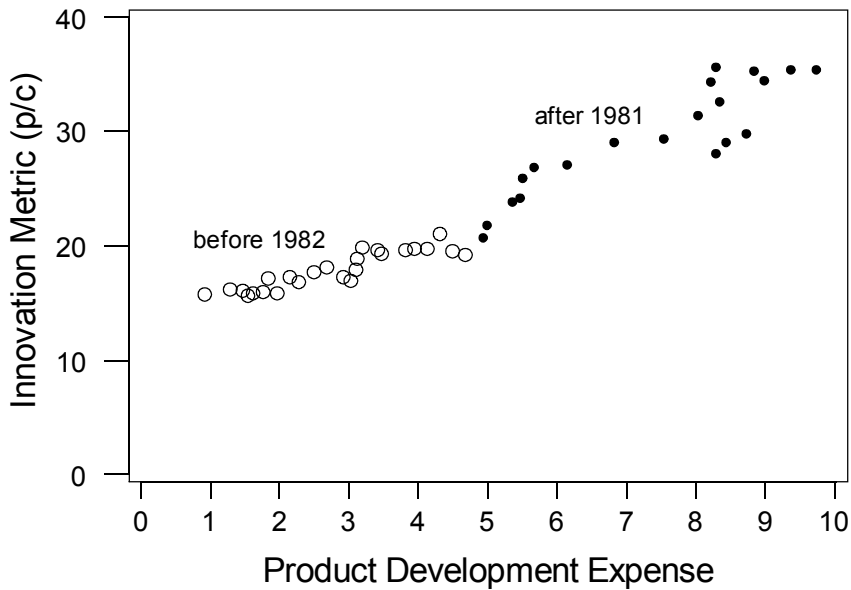
Upper - Aggregate Innovation Metric (p/c)

Lower - Product Development Expense



Non – durable goods display a different segmental pattern, displaying a shift between cause (lower) and effect (upper) of only ~ 0 – 1 year.

### Innovation Productivity



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