principle to control for or to study cyclical o secular disequilibria and to analyse directly the long run differences among industries. Industry averages over relatively long time periods shed more light on long run differences than observations for any single year" (Schmalensee, 2005).

These studies use different specifications of innovation: 1) patents (Scherer 1998; Cefis and Ciccarelli, 2005), which are at an intermediary stage between R&D and innovation and that can be used in cross-sector analysis with some difficulty given the sectoral different propensity to patent; 2) the number of (major) innovations (Geroski et al., 1993), which doesn't tell what happens to the larger population of innovative firms (with the risk to run into a sample bias); 3) innovation sales (Marsili and Salter, 2005), which do not allow to distinguish for innovation "quality", due to the fact that prices do not exhaustively reflect changes in product quality, but should reflect in principle market conditions and private returns.

We discuss briefly the main results of these studies. Scherer (1998) explored how much skewed is the distribution of profits from technological innovation and at what type of distribution (Paretian, log normal) it conforms[2]. Higher skewness (such as in the Pareto distribution) doesn't allow for a relation between the effort in R&D or innovation (input measures) and economic return. From a statistical point of view the distribution resulted closer to a log normal one, where the profit opportunities from innovation are roughly proportional to the size of the market. It should be possible for a firm to reduce risk by enlarging the innovation portfolio, a strategy only for a few companies.

Starting from these results Marsili and Salter (2005) investigated other behavioural implications and regularities in the distribution of returns: what do innovation features give rise to the observed distribution of return? The authors used the ratio "firm innovation sales to firm total sales" (from CIS II and III surveys) as the economic return variable for Netherlands and for two panels of innovative firms (total firms and persistent innovators). They observe the return distribution for different types of innovation and find out that it is more skewed in the case of radical innovations than for incremental ones. Novel innovations are more elitist. They also look for a relation between sectors and inter-firm diversity, advancing the hypothesis that firms' technological variety is lower in high-tech sectors[3]. The authors find out that sectoral factors matter in shaping the distribution of performance and selection across firms, but they don't alter the return distribution between different types of innovation.

Geroski *et al*. (1993) evaluated the effects of a major innovation (introduced on the market) on corporate profitability[4]. The empirical model is built upon a conventional "structure-performance" basis: profit margin is determined by industry variables (concentration, import intensity, labour unionisation) and firm variables (market share and the interaction between firm market share and concentration). The authors introduce three innovation variables: one for the number of innovation by firm and two for the *spillover* level in the industry in which the firm operates[5]. They find out that the number of produced innovations has a positive effect on profitability, even if only modest in size "on average"[6].

Moreover Geroski *et al*., by comparing innovators and non innovators, find out that innovative firms enjoy higher profit margins[7], but innovators enjoy also permanent return differences, even in years when they do not introduce innovation on the market. Innovative firms seem to have internal capabilities, which allow them to better enjoy external spillovers and to be insensitive to adverse macroeconomic situations. The authors find a confirmation of the fact that profitability is not linked to the output of an innovation process but to the process of innovation itself that transforms firm's capabilities.

Finally Cefis and Ciccarelli (2005) investigated the effect of innovative activities on corporate profitability for 267 UK manufacturing firms with a 5 years panel data for economic variables (from 1988 to 1992) and a

[2] The author used the royalties from US university patent portfolios and the quasi-rent from marketed pharmaceutical entities as return indicator.

[3] "where successful innovation is more imperative for the firms" (Marsili and Salter, 2005, p. 87).

[4] The database contains 721 UK manufacturing firms during the period 1972-1983 and the authors use two samples: the population (721 firms) and the innovators (117 firms that introduced at least one innovation during the period).

[5] The relation is controlled for firm specific fixed effects (to take into account variation across firms in technological opportunities and appropriability) and for systematic time effects, through lagged profit margins. The authors argue that the lagged margin, while appropriate for reflecting cash flow influence on decisions for research expenditure level, doesn't influence the timing of the innovation output, since time between profits and new innovative output operates with very long lags.

[6] Since other research using the same data had found that those innovations had had a greater effect on users' productivity than on innovation producers', authors assume that the same can be taken for profitability. The modest profits realized by innovators were only a fraction of the value that innovative activity produced. At the same time, since the selected innovations had commercial success, the total returns to (successful and unsuccessful) innovation could be thought lower that that found out.

[7] Because of the innovation introduced and the larger market share firms have.