MOBILITY AND PRODUCTIVITY OF ACADEMIC RESEARCH SCIENTISTS

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In this paper the mobility behaviour of researchers is analysed; two types of mobility behaviour are distinguished: job mobility and field mobility. Furthermore it is analysed to what extent scientists operate in research teams and if there is a relation between team mobility and team productivity.

1. INTRODUCTION

Our main objective in this paper is a quantitative analysis of the relation between the mobility of scientists operating in research teams and team productivity. Before discussing the empirical results (see section 5), we will first pay some attention to the mobility behaviour of scientists in general (see section 2 and 3 for job, resp. field mobility) and to the extent to which scientists operate in research teams (section 4). Many other studies have given data about the mobility behaviour of scientists (see for a bibliography [1]). In our case an uniform definition is used for researchers from three different disciplines (viz. physicists, chemists and economists) and the emphasis is laid on the differences between these disciplines.

The results presented in this paper are part of a larger research project in which the relations between the age, the mobility and the productivity of research scientists are investigated. The other results of the project, particularly the relation between age and productivity and the relation between the mobility of a research scientists and his productivity, will be published elsewhere.

The empirical data cover the research careers of 435 research scientists who were working at Dutch universities in 1980. Data were collected by means of a written inquiry and completed by information available at the Dutch research councils.

2. JOB MOBILITY

The average number of times a researcher (in our sample) has changed jobs is 1.4. As is easily understood, this number differs for the different age groups: the researchers younger than 35 years of age have changed on the average less than 1/2 times during their career, for the ones older than 55 years of age the have done so twice.

There are some differences between scientists from the different disciplines as is shown in fig. 1: the physicists on the average being the most mobile and the economists the least. Figure 2 offers per discipline for the different age groups the percentage of scientists that has never changed jobs. Remarkably, a high percentage (20 to 25%) of economists as well as chemists above 55 years of age still hold their first job; for the physicists this percentage is much lower (ca. 5%).

Next it was analysed whether productive and less productive researchers differ in their mobility behaviour. To this purpose the scientists are subdivided in four groups according to their publication productivity during the last three years (1978—1980). Figure 3 shows that on the average the most productive researchers have changed jobs more often than their less productive colleagues.

Scheme 1 shows per discipline-group the kind of job switches that have occurred. Switches between the university and the business sector can be found most often among the chemists and least often among the physicists. The opposite is true for switches between the university and the government sector. The economists take in between for these two types of switches; they have changed jobs most frequently outside the university sector; for the physicists and chemists more than half of their job switches are from one university to another; for the economists the corresponding figure is only one-third.
3. FIELD MOBILITY

For the scientists in our sample the average number of times they changed their research activity from one research field to another is 1.1. So field mobility has occurred less often than job mobility (the average number of job switches for the group in our sample is 1.4).

Per age group and per discipline, figure 4 shows the average number of field switches while figure 5 offers the percentage of each group that never has made a switch to another research field. On the average, the number of field switches a researcher has made increases with age. As contrasted with job mobility, there appears to be no significant difference between the disciplines.

The most productive researchers have changed research field more often than the less productive researchers (figure 6), though this difference was found to be less pronounced than in the case of job mobility.