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APPENDIX B SIMULATION INPUTS

This appendix will describe the inputs for the simulation of section 6.3. The inputs can be divided in three parts: the artificial data base of applicants, the inflow of new job-seekers without a job into this data base during the simulation and the parameters for firms in the simulation. The three vacancies were already described in section 6.3. The full data base is available upon request.

B.1 Artificial data base of applicants

The data base used for the simulation in section 6.3 was constructed artificially, because there are no 'real' data sets which contain all the necessary information. The data base consisted of profile descriptions of one thousand lower skilled job-seekers without a job. Some key-statistics were chosen to reflect the composition of lower skilled unemployment in the Netherlands as can be found in CBS (1991a).

Since the simulation merely serves as an illustration of the preference and acceptance models, the artificial data base was created rather 'ad hoc'. We look at job-seekers with not more than senior secondary education. This group of job-seekers may be divided in eight subgroups, with respect to origin and current status. These groups are presented in table B.1.

Table B.1 Artificial data base: eight subgroups of job-seekers

name	group	%
A	natives who have held a job during the last six months	10.4
B	immigrants who have held a job during the last six months	4.3
C	native school leavers	10.7
D	immigrant school leavers	4.2
E	natives who have been unemployed for more than six months	16.8
F	immigrants who have been unemployed for more than six months	7.4
G	natives reentering the labor market after a period of non-activity	33.6
H	immigrants reentering the labor market after a period of non-activity	12.6
TOTAL		100.0

Table B.2 presents the variables which are needed to describe applicants in accordance with the preference model of section 5.3. The characteristics of table B.2 were distributed over the 1000 job-seekers in the data base. The data set was constructed to represent those figures present in CBS (1991a) with respect to gender, age, origin and previous activity. The other characteristics are distributed according to 'educated guesses'. Table B.2 also presents the frequencies of the characteristics in the data base.

Table B.2 Artificial data base: characteristics of job-seekers

characteristic	**%**
has held a job in the previous six months or is still in education[a]	70.4
age	37.4[b]
immigrant[a]	28.5
female[a]	51.1
female breadwinner[c]	14.6
looking for part-time job[c]	29.0
no work experience[c]	20.1
experience in other work[c]	36.5
slightly increased probability of sick leave[c]	17.0
limited command of the Dutch language[c]	12.3
overschooled[c,d]	19.7
underschooled[c,d]	21.0
brings a specific wage cost subsidy of *f* 600[c]	9.9
travelling time is more than one hour[c]	14.1

a frequencies are chosen in accordance with CBS (1991a)
b value gives the average age of the job-seekers in the data base, see also figure B.1
c frequencies are 'educated guesses'
d the three vacancies used in the simulation were supposed to require the same level of education

Table B.3 shows how male and female job-seekers are spread - in accordance with CBS (1991a) - over the groups of table B.1.

Table B.3 Artificial data base: gender distribution over groups

group	male	female	total
A	6.1	4.3	10.4
B	2.7	1.6	4.3
C	5.4	5.3	10.7
D	2.4	1.8	4.2
E	8.6	8.2	16.8
F	5.1	2.3	7.4
G	11.0	22.6	33.6
H	7.6	5.0	12.6
TOTAL	48.9	51.1	100.0

Table B.4 presents the distribution of job-seekers of different age over the groups of table B.1. School leavers are younger, those reentering the labor market are older.

Table B.4 Artificial data base: distribution of job-seekers of different age over groups

	age								
group	18	23	28	33	38	43	48	53	total
A	0.3	0.8	2.1	2.2	1.7	1.4	1.0	0.9	10.4
B	0.6	0.6	0.5	0.4	0.6	0.7	0.5	0.4	4.3
C	4.7	5.4	0.5	0.1	0.0	0.0	0.0	0.0	10.7
D	1.9	2.0	0.2	0.1	0.0	0.0	0.0	0.0	4.2
E	0.1	0.9	1.7	1.9	2.5	2.6	3.3	3.8	16.8
F	0.1	0.7	1.1	0.9	0.8	1.2	1.4	1.2	7.4
G	0.0	0.3	2.0	4.3	8.3	7.8	7.1	3.8	33.6
H	0.0	0.2	1.3	2.1	2.8	2.8	2.2	1.2	12.6
TOTAL	7.7	10.9	9.4	12.0	16.7	16.5	15.5	11.3	100.0

Guesses were made regarding language proficiency of the job-seekers in the data base. Table B.5 shows that immigrants are supposed to have problems with the Dutch language more often than natives. Some natives, however, may not be able to read or write, which may also be seen as a limitation to command of language.

Table B.5 Artificial data base: command of language for natives and immigrants

command of dutch language	native	immigrant	total
good or adequate	67.7	20.0	87.7
limited	3.8	8.5	12.3
TOTAL	71.5	28.5	100.0

Also a guess was the work experience that different job-seekers bring along. It was assumed that older job-seekers are experienced more often than younger ones, as is shown in table B.6.

Table B.6 Artificial data base: work experience of job-seekers with respect to age

	work experience			
age	similar	different	none	total
18	0.7	0.3	6.7	7.7
23	1.9	1.3	7.7	10.9
28	4.3	3.9	1.2	9.4
33	6.1	4.7	1.2	12.0
38	8.0	8.2	0.5	16.7
43	8.2	7.6	0.7	16.5
48	7.3	6.6	1.6	15.5
53	6.9	3.9	0.5	11.3
TOTAL	43.4	36.5	20.1	100.0

Workers of higher age are also supposed to have a 'slightly increased probability of sick leave' more often than younger workers. Table B.7 shows how the health variable was distributed over job-seekers of different age.

Table B.7 Artificial data base: health with regard to age

	health		
	(1)	(2)	total
age			
18	7.3	0.4	7.7
23	9.7	1.2	10.9
28	8.5	0.9	9.4
33	10.4	1.6	12
38	14.3	2.4	16.7
43	13.6	2.9	16.5
48	11.8	3.7	15.5
53	7.4	3.9	11.3
TOTAL	83	17	100.0

(1) Good
(2) Slightly increased probability of sick leave

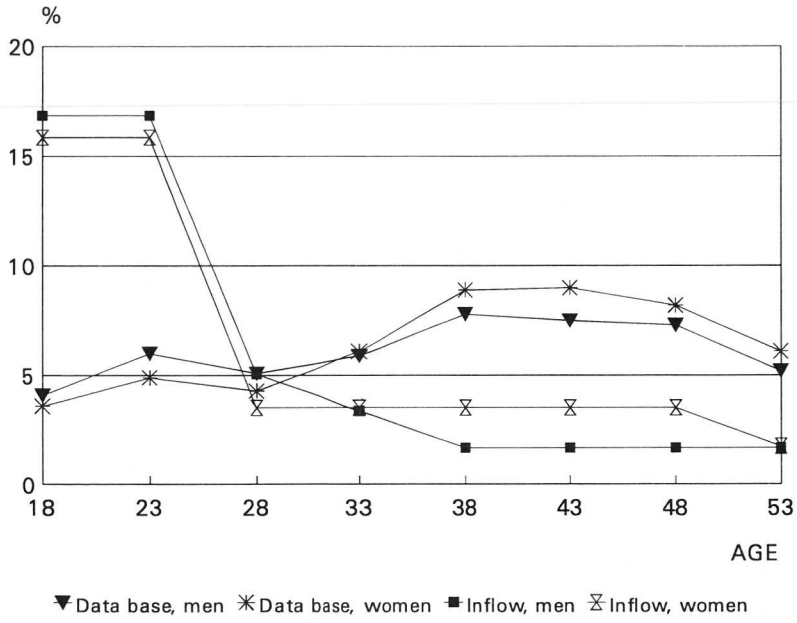
Finally, some characteristics were randomly spread over the job-seekers in the artificial data base. First, matching educational attainment of individual job-seekers to educational requirements in vacancies, appeared to have prohibitively large computational costs. Therefore, and in view of the illustrative character of the simulation, the characteristics 'overschooled', 'underschooled' and 'meeting the requirements' were randomly spread over the data base of job-seekers. Data on travelling time were not available and therefore 'travelling time more than one hour' was also spread randomly over job-seekers. Whether job-seekers would seek a full-time or a part-time job and whether they would be liable for a wage cost subsidy was also randomly decided.

B.2 Inflow of new job-seekers into the data base

As was illustrated in figure 6.1, the artificial database of job-seekers was replenished with a new job-seeker, each time a job-seeker found a job. The inflow into the artificial data base was supposed to be younger, at average, than the job-seekers who are in the

data base at the beginning of a simulation cycle; new job-seekers without a job will be primarily school leavers. However, also people who lose their job and want to find a new one and people who decide to reenter the labor market should enter our artificial labor queue. 'Real' data on the inflow, thus described, are not available. So, an artificial, young inflow was created on the basis of the data base described in the preceding section.

Figure B.1 Artificial data base: age-distribution of the labor queue at the beginning of a simulation-cycle and of the inflow into the labor queue.



The artificial inflow was created during the process of simulation. Each time a new entrant into the labor queue had to be selected, this was done by randomly drawing a job-seeker out of the data base described above. The randomization procedure, however, was weighed in order to increase the probability of young entrants. The weights were chosen differently for men and women, in order to take account of the idea that re-entrants into the labor market will more often be female. Figure B.1 compares the expected age-distribution of the inflow, to the age-distribution of the original artificial data base.

B.3 Firm-characteristics

The simulation used three types of vacancies. Many more firm-specific characteristics are included in the acceptance model. Contrary to the job-seeker part of the simulation, a database with all the necessary variables on firms was readily available: the survey on which this study is based contains them all. Using this complete database, however, appeared to bear large computational costs. This investment in computation was not made in the light of the illustrative character of the simulation. For the other firm-specific characteristics, which are not part of the vacancy descriptions, average values, as observed in the survey, were taken. Table B.8 gives an account of the values used.

Table B.8 Firm-characteristics in the simulation: averages of the respondents in the survey

characteristic	value
FIRM/ESTABLISHMENT	
proportion of main establishments	.58
proportion with good trading results	.81
proportion with moderate trading results	.14
proportion with bad trading results	.05
proportion don't know/cannot tell trading results	.01
average proportion of part-time employees	.09
average proportion of employees younger than 25	.23
average proportion of employees older than 40	.30
average proportion of non-Dutch employees	.04
proportion with trainee(s) present	.38
EDUCATIONAL REQUIREMENTS FOR VACANCY	
proportion none	.50
proportion primary education	.10
proportion junior secondary vocational education	.34
proportion junior secondary general education	.03
proportion senior secondary vocational education	.03
proportion senior secondary general education	.00
average salary/ 1000	2.50
SELECTOR	
proportion general manager	.63
proportion head of manpower department	.10
proportion personnel worker	.02
proportion administrator	.25
average experience (years)	.12
proportion female	.10