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EFFICIENCY OF JOB MATCHING MECHANISMS: A CROSS-NATIONAL COMPARISON

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ABSTRACT The purpose of the present paper is to gain insight into the efficiency of the labour market information and job matching mechanisms by means of a cross-national analysis of labour force micro data for The Netherlands and the United States. First, the impact of personal and regional unemployment on the decision to migrate is investigated. Second, job search success is evaluated by measuring the impacts of the regional labour market situation and migration on the (re-)employment probabilities of the unemployed in both countries. The result is that the Dutch information system which allows nationwide job search from the home area without migration is superior to the U.S. system of speculative migration.

1. INTRODUCTION

An important question for economists concerns the effectiveness and efficiency of interregional migration as a labour market adjustment mechanism. In this regard the following two aspects can be discussed.

The first is the *macro* aspect which has received attention from especially, neoclassical and Keynesian economists. In the view of the former labour is highly responsive to spatial (and non-spatial) differences in wages. Regions with excess supplies of labour, in particular with high unemployment rates, are characterised by low wages and regions with excess demand for labour by high wages. This difference in wages leads to migration from the former to the latter and, hence, to the spatial adjustment of demand for and supply of labour. The Keynesians have a similar view on migration as a spatial labour market adjustment mechanism, although it is differences in job opportunities rather than wage differences which triggers migration. Another macro aspect, which has been paid less attention to, is the consequences of migration for both the region of origin and the region of destination. In the former case the main problem is the

outmigration of (potential) key workers and in the latter the possible supersedence of the native unemployed (Van Dijk and Folmer 1986, and Van Dijk 1986).

The second is the *micro* aspect which is concerned with the expected improvement of utility of individuals and households from migration. The decision whether and where to migrate is dependent on information about spatial differences in wages and (un-)employment rates, about vacancies, and social and economic migration costs. The quality of information and the success of (post-move) job search are highly dependent on the institutional arrangements with regard to job matching.

The institutional aspects have hardly been paid attention to in the literature, although they are important issues in political debates in both Europe and the U.S. This neglect is, inter alia, a consequence of the fact that insight into the effectiveness of institutional aspects cannot, or only unsatisfactorily, be studied empirically within a national framework. Empirical evidence can usually only be obtained when institutional changes take place, which occurs relatively infrequently. Moreover, adjustments to institutional changes often take place with considerable time lags so that behavioural changes may also have been affected by changes in other variables. Finally, the implementation of institutional changes often requires a priori some empirical evidence on the consequences of the changes. As this evidence can only be obtained via the institutional changes, a vicious circle may arise.

A possible way to gain insight into effects of institutions is by means of cross-national comparisons of systems which are quite similar with respect to all relevant aspects but the institution under comparison. It is obvious that the similarity between economic systems may often be questionable, which forms a serious methodological drawback to the approach of cross-national comparison. (For detailed information about the methodological pitfalls see, among others, Folmer and Nijkamp 1985; Folmer 1986). Often, however, it is the only possible or the least fallible approach.

The purpose of the present paper is to gain insight into the efficiency of the labour market information and job matching mechanisms by means of a cross-national analysis of labour force micro data for The Netherlands and the north eastern part of the United States. Efficiency will be measured on the micro level by the impact of the personal unemployment status and of the regional labour market situation on job search behaviour, in particular the decision to migrate, and by the impact of migration on the (re-)entry probabilities of the unemployed in both countries. In Section 2, a brief overview of workers' job seeking behaviour in the two countries is presented. On this basis some hypotheses with regard to the impact of the labour market information system on job search behaviour and job search success are formulated. Section 3 discusses the labour force populations selected for the study as well as personal characteristics which are mentioned in the literature as determinants of migration and job search success. In Section 4, empirical results using multivariate analysis are given.

2. JOB SEEKING BEHAVIOUR

In the United States, the role of family, friends, and relatives in providing labour market information (in the sequel denoted as the personal information system) on employment opportunities and associated job characteristics has often been emphasised. Lansing and Mueller (1967) documented such informational sources for both national labour markets and for economically depressed areas. The dominance of personal information networks has also appeared in case studies of (unemployed) workers, such as that by Sheppard and Belitsky

(1966). Interestingly, there is no evidence to suggest that public employment services are critical to the "average" worker's search process. As discussed by Levitan, Magnum, and Marshall (1976), a nationwide public employment service was established in the United States in the 1930s, prompted initially by the Wagner-Peyser Act of 1933 and subsequently by Title III of the Social Security Act of 1935. Currently administered on the state level, and federally funded primarily through unemployment insurance taxes, neither potential employees nor employers appear to rely on these services as their primary source of labour market information. This may be due, at least in part, to an ever changing role and associated public policy demands placed on these agencies (see Levitan, Magnum, and Marshall 1976, chapter 14 and for more discussion, see Cassell 1968).

The status of the public employment service in the United States stands in marked contrast to its counterpart in The Netherlands. In The Netherlands data processing equipment is utilised at local employment offices for computerised job matching on a national scale. The local databases are connected to each other and therefore, in each Labour Office, it is possible to obtain information about vacancies and unemployed in other areas. From several studies it is known that the Labour Exchange is an important source of information for job searchers. Heijke (1986) reports that for 37 percent of the job seekers the Labour Exchange is the main information channel, where as for friends and relatives it is only 7 percent. It should be observed that in order to be entitled to unemployment benefits an unemployed is obliged to register at the Labour Exchange and to accept a job offer which matches his or her labour market qualifications. There is no need for an individual, however, to accept a job offer which does not match his or her job qualification or which implies moving. Because most of the uemployed are obliged to register, the information about the stock of unemployed is up to date. The main exceptions are formed by hidden unemployed.[1]

The official stock of *vacancies* is highly incomplete because employers are not obliged to register vacancies at the Labour Exchange. Moreover, there is some evidence that employers prefer informal networks (such as friends and relatives) and formal channels (such as local and national newspapers and magazines) to the public services. The following explanation for this preference applies. Employers have a natural tendency to prefer employed and (well-educated) school-leavers to the unemployed because the latter are assumed to have inferior job qualifications. This applies in particular to medium and long term unemployed who are strongly overrepresented among the individuals registered at the Labour Exchange (Folmer and Van Dijk 1987). Because the employed and school-leavers (at first instance) do not register at the Labour Exchange, employers tend to exploit the personal and formal channels to a substantially larger extent than the Labour Exchange.

In the case of vacancies for which lower qualifications are required the Labour Exchange is the main information channel. This is because unemployed registered at the Labour Exchange are assumed to have sufficient qualifications for these kinds of jobs. Although employers may prefer other channels for recruiting personnel, they might use the Labour Exchange as an additional channel. Following Beardsworth et al. (1982), this might be done because "Some

[1] Hidden unemployed will occur mainly among individuals who are not the main breadwinner. Because we restrict our analysis to heads of households (which are usually the main breadwinners), no major disturbances due to hidden unemployment will occur in our analysis.

channels of recruitment may be kept open even if their effectiveness is regarded as low in order to satisfy organisational requirements such as the maintenance of good relations with the employment service." Further details about the use of information channels can be found in Table 1. With regard to this table it should be observed that usually more than one channel (2.8 on average) is used. From a survey among unemployed a similar picture arises (Stichting van de Arbeid 1986).

The upshot of the foregoing is that for vacancies for which lower qualifications are required the Labour Exchange is the most important, nationwide information channel for both employers and employees (in particular the unemployed). A similar relationship holds for national newspapers and magazines and vacancies for which middle level and high qualifications are required. This leads to the important conclusion that for vacancies of all levels there exists a well-organised nationwide information system in The Netherlands.

As a consequence of these institutional arrangements the optimal job search strategy for a Dutch individual is to engage in job search from the home area. For an individual who wants a job or who wishes to change jobs *without* moving (i.e. in or nearby the home region) the optimal strategy is to exploit all three kinds of information channels (advertisements, family and friends, Labour Office). If she or he wants a job outside the home region which does imply moving the optimal strategy (in the usual absence of a network of friends and relatives in the search regions) is to exploit the formal information channels and the Labour Exchange. "Speculative" migration, associated with individuals who move first and then look for jobs (post-migration search) is not necessary in order to get reasonably well informed about job openings in other areas. The only kinds of jobs about which an individual may not be informed in the absence of speculative migration are those "announced" via personal networks. The disadvantages in terms of costs of speculative migration, however, by far outweigh the advantages in terms of job search success because of the extremely slight possibilities to enter personal networks in nonhome areas, especially in the short term. Furthermore, there is some evidence that employers prefer natives to migrants with similar job qualifications because of less adaptation problems and lower costs (moving and housing costs) for the former (Van Dijk 1986, chapter 3). Consequently, the rate of speculative migration in The Netherlands is virtually nil.[2]

The Dutch situation is significantly different from the situation in the United

TABLE 1. Exploitation of Information Channels by Level of Job Qualification in The Netherlands

Information Channel	Job Qualification: Low	Middle	High
Labour Exchange	79%	48%	17%
Internal Labour Market	75%	74%	46%
Temporal Employment Agencies	66%	30%	4%
Advertisements	46%	83%	90%

Source: Gasperz and Van Vooiden (1985).

[2] The following remarks apply. First, the spatial scale of The Netherlands is such that, if desired, personal job search could be performed by "speculative commuting" from virtually any region. Second, migration may not only be induced by job search related factors, but also by other variables such as housing and schooling. For both The Netherlands and the U.S. it is likely that the proportion of unemployed who migrate for reasons not associated with job search is very small. It may be important for students, military personnel and retired people, but these categories are excluded from the analysis.

States, where migration is more or less a prerequsite for successful job search in nonhome areas. Although there have been pioneering computer assisted job matching systems in the United States (see Levitan, Magnum, and Marshall 1976), a nationwide network of computerised job matching installations is still a futuristic concept in the U.S.

Compared with a nationwide information system, at least two disadvantages of speculative migration can be identified. First, the costs, in particular for the individual, are likely to be very high. Second, the scope of search is very small. Whereas a nationwide information system allows nationwide search, speculative migration confines search to the inmigration region. Moreover, the information on which speculative migration is based may be rather poor. Lansing and Mueller (1967), for example, found a lack of labour market information among migrants and even incorrect impressions concerning employment opportunities and/or wages elsewhere. This was true for both the national labour market as well as for individuals from economically depressed areas.

On the basis of the difference between the Dutch and U.S. information systems outlined above the following hypotheses concerning the efficiency of the U.S. and Dutch job search mechanisms can be formulated. First, because of the lack of a nationwide information system the U.S. job seeker is more dependent on personal and informal information channels than the Dutch job seeker in the case of job search outside the home region. The absence of a nationwide information system leads to higher migration rates in the U.S. than in The Netherlands, because migration is necessary for the establishment of contacts in other labour markets. Hence, the rate of speculative migration for job seekers in the U.S. is likely to be substantially higher than in The Netherlands where, as mentioned above, speculative migration is virtually nil.

The data to be analysed do not contain information about being a job seeker or not. However, they do provide information about being employed or unemployed. Since the unemployed usually are job seekers, the analysis will focus on the relationship between unemployment and migration.

From the foregoing it follows that unemployed in the U.S. are likely to be strongly inclined to migration. In The Netherlands no causal relation between unemployment and migration is expected. In this regard the following remark applies. The Dutch data report employment and migration status at two discrete points in time (April 1978 and April 1979). Because of this feature of the data migration and unemployment are likely to be statistically related. The causal ordering underlying this relationship, however, goes from being unemployed to becoming (re-)employed, the latter implying migration. Therefore, in The Netherlands we expect unemployment to be statistically related to migration only in the case where the unemployed become (re-)employed. If he or she remains unemployed the relationship between unemployment and migration is expected to be insignificant, which implies that their propensity to migrate does not differ from those who are employed. It should be observed that only some tentative support for the hypothesis on the migration inducing impact of unemployment in both countries can be derived from the samples at hand. In order to test the hypothesis thoroughly, event history data which report when and why the decision to migrate was made are needed. These kinds of data, however, are not available.

Second, in addition to the personal employment status the local unemployment rate is likely to be a (speculative) migration inducing variable. In this regard two counteracting effects can be distinguished. These effects are similar to the so-called "discouraged" and "additional worker" effects in labour supply theory.

a. *Discouraged migration effect*
Employed facing a relative high unemployment rate in their present location are likely to be highly aware of the risk of becoming unemployed (inter alia after migration). Thus, they may prefer a "certain" position in their current location to an uncertain position in another region. More or less the same holds for the unemployed who live in an area with a relatively high unemployment rate. The high unemployment rate might make them expect high risks of becoming unemployed in the new region. Moreover, if after the move a job is found in a third region, migration for a second time might be necessary. These expectations, combined with the loss of their social contacts in the present home region, might hamper unemployed individuals' willingness to migrate.

b. *Additional migration effect*
Employed facing high unemployment rates in their home region may be stimulated to migrate so as to avoid the risk of becoming unemployed themselves. The unemployed may be inclined to migrate to improve their (re-)employment probabilities. Especially when unemployment goes together with low income, the risks and uncertainty of moving to a location with more flourishing labour market conditions may be outweighed by the unemployment risk in the home area.

For The Netherlands we expect the discouraged migration effect to be dominant because of the labour market information and social security systems which make it possible to search nationwide from the home area at a reasonable standard of living while preserving their existing social contacts.[1] For opposite reasons the additional migration effect is likely to be dominant in the U.S. The upshot of the foregoing is that the regional unemployment rate is likely to have no or a negative impact on migration in The Netherlands and a positive, statistically significant effect in the U.S.

Third, because speculative migration involves high risks of misconceptions of local (un-)employment rates and job opportunities (Lansing and Mueller 1967) and has a small scope for search, it does not always lead to (re-)entry into employment. This applies to both employed and unemployed. On the other hand, nonspeculative migration of the unemployed is almost always induced by (re-)entry into employment. Migration of the unemployed may be induced by variables which are not related to job search, but, except for the reasons mentioned in Footnote 2, this kind of migration is small and may be neglected. Consequently, there is likely to exist a significant, strong positive relationship between migration and (re-)entry into employment in The Netherlands and a substantially smaller, positive, probably insignificant, relationship in the U.S. This hypothesis will be tested by means of a model relating (re-)entry into employment to its personal

[1] In the Dutch situation, for a large number of unemployed the unemployment benefits are about 85 to 95 percent of the net income previously earned. Moreover, the percentage is nearly constant during the first two and a half years for most unemployed. There are some exceptions to the general regulations with regard to unemployment benefits. First, spouses who have been unemployed for over six months are not entitled to unemployment benefits. The same applies to spouses, who enter the labour market for the first time and do not find a job. Second, for other categories of unemployed than spouses, who have not been previously employed, the unemployment benefits are equal to the minimum subsistence benefits. The same applies to those who have been employed for less than 6 months before they became unemployed and for those who have been unemployed for more than two and a half years. Third, there exists a maximum for the unemployment benefits so that for the higher income groups the benefits can be substantially lower than 85 percent of the income previously earned. Finally, those who quit voluntarily are not entitled.

and regional determinants, including migration. We repeat that in The Netherlands the causal relationship goes from (re-)entry to migration and in the U.S. from migration to (re-)entry. The hypothesis predicts that ceterus paribus the "effect" of the migration variable is significant and positive in The Netherlands and positive in the U.S. though substantially smaller than in The Netherlands.

3. THE RESEARCH POPULATION: DESIGN AND CHARACTERISTICS

An examination of the relationships between pre- and post-move unemployment and migration of the labour force is generally precluded because of the unavailability of migration microdata containing employment and unemployment information for individuals on both a pre- and post-move basis. However, information for such an examination in both The Netherlands and the United States can be obtained through special tabulations of respective survey data in the two nations. Every two years the Census Bureau of the European Community organises a labour force survey in the member countries. The Dutch Labour Force Survey (C.B.S. 1981) provides data for eleven regions (provinces) in The Netherlands. These regions correspond, in general, to the concept of a Metropolitan Statistical Area (MSA) in the United States. The survey for The Netherlands consists of records providing information on such characteristics as age, education, and labour force status. (Examples of studies utilising this data include Van Dijk and Folmer 1985, 1986.) Migration can be observed in the data over the period 1978–79 (the actual migration interval is 12 months).

Although several alternative data sources for labour market information in the United States were examined for comparability to The Netherlands survey, this study utilises the microdata files of the Public Use Sample of the 1980 Census. For a discussion of these files see, for example, Isserman et al. (1982) and Herzog and Schlottmann (1984). Previous work by the U.S. authors has employed the microdata files of the Income Dynamics Panel Survey and the National Longitudinal Survey. The Public Use Sample is the only major data source available in the United States which allows a large number of microdata observations to be defined for MSAs in the Northeast, a geographic area with a population density, a transportation network and an industrial structure similar to that of The Netherlands. The 48 Northeastern MSAs comprising this study lie in six states (Connecticut, Massachusetts, Maryland, New Jersey, New York, and Pennsylvania). Migration of the labour force can be measured over the period 1975–80. The length of the migration interval is the only labour force characteristic which is not directly comparable between the two samples. (Implications of this difference in time interval will be discussed below.)

It is important to know that only singles and heads of households were selected, because we assume that their migration decision will dominate the family decision, even if there are negative (employment) effects for the remaining family members. Both samples were processed to extract white members of the labour force aged 15–60 at the beginning of the migration interval who were members of the labour force at the end of the period as well. In this respect, excluded from the universe over the respective migration intervals were individuals attending college, members of the armed forces, and inmates of institutions. Individuals were also required to report complete information (age, educational attainment, etc.). Based upon the above restrictions, the resulting sample consists of 55,464 observations for The Netherlands and 38,995 observations for the Northeastern United States.

As concluded at the end of Section 2, the differences in institutional

arrangements between the U.S. and The Netherlands are likely to give rise to substantial differences in job search behaviour and job search success. In order to test the hypothesis formulated, the other variables which are known to induce migration and to influence job search success must be controlled for. These variables are well documented. The migration inducing variables are listed in Table 2 which shows the close similarity in composition between the two samples. Moreover, for both The Netherlands and the U.S. differences by mobility status in these variables are tested by means of the t-test for differences in proportions. Several characteristics shown in Table 2 are of interest for their similarity between the two nations. They will be briefly discussed below.

A common finding among migration studies is the negative relationship between migration propensity and age of the "at risk" population an association often termed the "age selectivity of migration." Notice in Table 2 that this selectivity holds for both The Netherlands and the United States, with significantly lower percentages of migrants in the older age categories (compared to nonmigrants). Another common finding in the migration literature has been termed the "educational selectivity of migration," namely, that there exists a positive relationship between migration propensity and education of the "at-risk" population. Also note in Table 2 that this relationship is significant in both nations.

TABLE 2. Mean Characteristics of the Labour Force by Country and Mobility Status[a]

	NETHERLANDS		NORTHEASTERN UNITED STATES	
Variables:	non-migrants	migrants	non-migrants	migrants
sex: male %	93.2*[b]	90.4	82.6*	85.5
age: 15–24 years	6.1*	18.6	9.3*	19.9
25–29 years	15.0*	27.7	13.5*	26.7
30–34 years	17.8*	23.3	13.1*	17.7
35–49 years	37.5*	23.9	38.7*	25.9
more than 50 years	23.6*	6.6	25.2*	9.7
	100%	100%	100%	100%
education:				
less than 7 years of schooling	23.6*	10.7	19.8*	10.4
7–9 years	26.5*	17.1	40.3*	29.3
10–12 years	33.9*	38.2	14.7*	18.9
more than 12 years	15.9*	34.0	25.0*	41.3
	100%*	100%	100%*	100%
household size = 1	10.4*	19.9	14.4*	18.7
household size = 2	23.0*	29.7	25.6*	26.4
household size ≥ 3	66.6*	50.3	59.9*	54.9
	100%	100%	100%	100%
occupation:				
blue collar	47.1*	24.0	39.4*	27.6
professional and technical	22.8*	39.8	31.9*	46.3
other white collar	30.1*	36.3	28.5*	26.1
	100%	100%	100%	100%
unemployment rate:				
% at t (Neth. 1978; U.S. 1975)	1.8*	3.3	4.5*	6.0
% at $t + 1$ (Neth. 1979; U.S. 1980)	2.4	2.9	3.6	3.7

[a] For definition of the research population, see text. Sample observations for The Netherlands and Northeastern United States are 55,464 and 38,995 respectively. Characteristics represent beginning of period values (1978 and 1975 for The Netherlands and the U.S., respectively) except for the unemployment % at $t + 1$.

[b] Based on the null hypothesis that the means for migrants and non-migrants are equal for a characteristic. An * indicates a statistically significant difference at 1 percent or better (t-ratios not shown in Table 2).

Of specific interest to this study is the incidence of pre- and post-move unemployment among labour force migrants and nonmigrants shown in Table 2. For both countries, the pre-move unemployment rate of labour force migrants is significantly higher than for nonmigrants. This relationship has been reported both in analyses of U.S. survey data, such as by Masnick (1968) and Saben (1964), and in similar analyses for The Netherlands (see Evers and van der Veen 1986). There does not appear to be a difference in post-move unemployment rates between migrants and non-migrants in either country.

Interestingly, the other characteristics shown in Table 2 are both similar between the two nations and consistent with reviews of the migration literature, such as those by Greenwood (1985, 1975) and Ritchey (1976). For example, the presence of children appears to be lower among migrants relative to nonmigrants, while, on the other hand, the percentage of migrants in professional and technical occupations is higher in both countries. For blue collar workers the opposite is true and in the case of white collar workers the results are contradictory for both countries.

4. MIGRATION AND PRE-MOVE UNEMPLOYMENT

This section will examine empirically individual effects of the characteristics shown in Table 1 on labour force mobility while, at the same time, addressing the principal issue of the impact of unemployment on the labour force migration decision. To address any variation in migration response attributable to the origin country, two equations will be estimated, one each for The Netherlands and the United States.

Determinants of the migration decision include both personal characteristics of potential migrants and the local unemployment rate. Our preceding analysis suggests that relevant individual characteristics for the empirical analysis should include sex, age, education, unemployment status, household status, and occupation. All personal characteristics are entered in the analysis as categorical variables. For example, a dichotomous variable was set equal to one if an individual had pre-move unemployment, and set equal to zero otherwise. Usually, variables like age and education are operationalised as continuous variables in this type of analysis. However, the categorical format was necessitated by the data collected in The Netherlands' Labour Force Survey. The categorical format is not a drawback, however, because it has the advantage that the often assumed constant elasticity for all age groups is no longer necessary. The price is the loss of some additional degrees of freedom, but this is not a serious problem in the present type of micro analysis. Also included in the analysis was the local unemployment rate, which was set to one if it exceeded the national average unemployment rate.

As discussed above, the major issue considered in this section is the impact of personal and regional unemployment on an individual's decision to either leave or stay in the current location. For each country, the dependent variable for an individual "at-risk" to migration is set equal to unity if a move occurred, and zero otherwise. For econometric analysis, the labour force microdata examined in Table 2 yields 55,464 individuals at-risk to migration from The Netherlands and 15,361 individuals at-risk to migration from the Northeast.[4]

[4] For The Netherlands the number of migrants was 721. The Dutch sample assigns weights to each individual to correct for nonresponse and spatially different sampling. All the analyses are based on weighted individuals, which implies that the 721 observations are equal to 671 weighted migrants, which is equal to a migration rate of 1.2 percent.

For each country, Table 3 presents binary logit estimates of the determinants of the migration decision. The estimated coefficients are differences on the log-odds scale with respect to the grand mean. The grand mean represents the estimate for the reference group, which is formed by the individuals with the first mentioned characteristic of all variables. Therefore, the first level of each variable is zero because there is no difference with the reference group. On the basis of the overall goodness of fit the conclusion can be drawn that the estimated model performs very well for both countries.

The first impression of the estimated coefficients is the difference between the two countries for the constant, which represents the migration probability for the reference group. The much higher probability for the U.S. is to an extent unknown and mostly due to the fact that the migration interval is one year for The Netherlands and five for the U.S. Scale effects and distance selectivity (see Klaassen and Drewe 1974), which may vary between the two countries, are also incorporated in the constant and, hence, do not affect the other estimated coefficents. Personal characteristics of individuals at risk to migration are shown

TABLE 3. Determinants of Labour Force Migration by Country: Binary Logit Estimates[a]

Variable		NETHERLANDS Estimate	NETHERLANDS St. err.[b]	NORTHEASTERN UNITED STATES Estimate	NORTHEASTERN UNITED STATES St. err.
GM	Grand mean[c]	−3.53	0.18***	−1.37	0.11***
sex(1)	male	0.00		0.00	
sex(2)	female	−0.54	0.16***	−0.42	0.08***
unem(1)	employed at t	0.00		0.00	
unem(2)	unem. t, empl. $t+1$	1.00	0.27***	0.38	0.11***
unem(3)	unem. t unem. $t+1$	0.06	0.45	0.30	0.12***
age(1)	15–24 years	0.00		0.00	
age(2)	25–29 years	−0.60	0.12***	−0.15	0.08*
age(3)	30–34 years	−0.93	0.13***	−0.57	0.09***
age(4)	35–49 years	−1.59	0.14***	−1.21	0.08***
age(5)	more than 50 years	−2.36	0.18***	−1.72	0.10***
educ(1)	< 7 years of school	0.00		0.00	
educ(2)	7–9 years	0.07	0.15	0.05	0.10
educ(3)	10–12 years	0.41	0.14***	0.27	0.10***
educ(4)	> 12 years	1.04	0.16***	0.48	0.10***
size(1)	household size = 1	0.00		0.00	
size(2)	household size = 2	−0.40	0.13***	−0.03	0.08
size(3)	household size ≥ 3	−0.56	0.13***	−0.29	0.07***
occu(1)	blue collar	0.00		0.00	
occu(2)	prof. and tech.	0.60	0.13***	0.50	0.08***
occu(3)	other white collar	0.73	0.11***	0.24	0.07***
urat(1)	reg. unempl. low	0.00		0.00	
urat(2)	reg. unempl. high	0.26	0.08***	0.40	0.14***

[a] All variables, as well as the microdata samples, are defined in the text. The logit estimates are based upon 55,464 observations and 15,361 observations for The Netherlands and Northeastern United States respectively.

[b] Significance tests are for the hypothesis that the coefficient is different from the grand mean. For the grand mean the hypothesis is different from zero.
* indicates significance at the 10 percent level
** indicates significance at the 5 percent level
*** indicates significance at the 1 percent level

[c] Estimate for the reference group, with characteristics: male, employed at t, age 15–24, < 7 years of schooling, household size = 1, blue collar occupation, at t living in a region with unemployment rate below the national average. The other coefficients are differences on the log-odds scale with regard to the grand mean.

to be significant determinants of migration, and the similarity between The Netherlands and the United States is striking. Both the age and educational "selectivities" of migration are confirmed for both nations. Only the magnitude of the estimated parameters shows some differences. The selectivity with regard to age, household size and education are somewhat more pronounced in The Netherlands than in the U.S. In addition, the likelihood of migration is reduced somewhat among female members of the labour force and/or individuals with children present. On the other hand, occupational selectivity associated with the white-collar workforce augments this likelihood, ceteris paribus.

As shown in Table 3, the impact of the personal unemployment status on an individual's decision to either leave or stay in the current location is in the U.S. an important, and statistically significant, explanatory variable, which indicates that personal unemployment increases the likelihood of speculative migration. This result is consistent with other microdata-based studies such as Da Vanzo (1978), Navratil and Doyle (1977), and Herzog and Schlottmann (1984), each of which attributes significant migration response to (pre-move) unemployment. With regard to The Netherlands the difference between the two categories of unemployed distinguished (i.e. those who become (re-)employed and those who remain unemployed) is striking. It supports the hypothesis that migration of the unemployed in The Netherlands mainly goes together with becoming (re-)employed. On the other hand no significant effect shows up for the Dutch unemployed who remain unemployed. Recall that both groups of unemployed are compared to those who are employed in 1978.

In line with these results are also the estimates for the local unemployment rates as significant determinants of mobility. However, in contrast with all other studies and the result in this paper for the U.S., in The Netherlands a high local unemployment rate has a negative effect on mobility! This extremely dissimilar result between the two countries is particularly significant given the similarity, in general, of all the other determinants of migration discussed above. In our view, this result relates to the major institutional differences between the two countries in the public employment service and associated spatial job search. In The Netherlands, as noted above, (unemployed) individuals can search both their local labour market and other spatially dispersed labour markets throughout the country from their current location. With job search in The Netherlands linked to a national employment information system, our results strongly suggest that "speculative" migration is not a significant feature of labour markets in The Netherlands. By contrast, the existence of such "speculative" migration in the United States appears to be confirmed.

Whereas this section focussed on differences in job search behaviour between the U.S. and The Netherlands, the next section will address the efficiency of the job search institutions in both countries.

5. (RE-)EMPLOYMENT OF THE UNEMPLOYED

Pre- and Post-Move Unemployment

Before investigating the determinants of re-employment for the unemployed, it will be instructive to examine how the incidence of the unemployment rates at t and $t + 1$ varies by mobility status. Table 4 indicates these unemployment rates for both The Netherlands and the United States. Time t means 1975 for the U.S. and 1978 for The Netherlands and $t + 1$ 1980 and 1979, respectively. For migrants t and $t + 1$ refer to pre- and post-move situations. As shown in Table 4 (second column), the pre-move unemployment rates for migrants in

TABLE 4. Pre- and Post-Move Unemployment Rates by Country and Mobility Status[a]

	Unemployment rates			
			$t + 1$ by employment status at t:	
Country:	t	$t + 1$	employed	unemployed
Netherlands				
migrants	3.3%*	2.9%	2.1%[b]	24.5%*
non-migrants	1.8%	2.4%	1.1%	67.7%
Northeastern United States				
migrants	6.0%*	3.7%	3.4%	8.9%
non-migrants	4.5%	3.6%	3.3%	9.6%

* indicates a statistically significant difference (at the one percent level) between migrants and non-migrants.

[a] Research population as defined in Table 1. The complementary employment category is not presented. t and $t + 1$ refer to 1975 and 1980 for the U.S. and to 1978 and 1979 for The Netherlands.

[b] This figure has to be read as follows. Of those who were employed at time t and moved between t and $t + 1$, 2.1% was unemployed at time $t + 1$.

both countries are higher than the comparable figures at time t for non-migrants. This observation is consistent with the finding of the preceding section that unemployment is an important migration inducing variable in the U.S. At $t + 1$ this difference has almost completely disappeared (see column three).

Of considerable interest to this study is the unemployment rate at $t + 1$ for individuals who were unemployed at t; that is, does mobility impact upon the likelihood of employment? As can be observed in Table 4 (last column) for The Netherlands, the unemployment rate of migrants at $t + 1$ (24.5 percent) is significantly lower than for non-migrants (67.7 percent) at $t + 1$ for individuals who were uemployed at t. By contrast, note that, in the United States, the corresponding unemployment rates are much lower. In this regard the difference in time interval between the samples for the two countries should be taken into account. On the one hand, the five year period for the U.S. enlarges the probability of becoming (re-)employed compared to the Dutch one year period. On the other hand, the probability of becoming unemployed (again) also increases. Moreover, several transitions from unemployment to employment and vice versa may occur during this period. It should be noted that these transitions may also occur in The Netherlands, although probably to a considerably less extent. Moreover, remigration without becoming employed may occur in the U.S. Unfortunately, it is not possible to correct for the transitions between the two points in time. It will be assumed that when an individual becomes unemployed again after a move, he or she will continue to search in the same way and will move again. Under this assumption some insight into the relationship between migration and (re-)employment may be gained, although the drawbacks of the data set and the assumption just made should be kept in mind.

The results in Table 4 suggest that in The Netherlands spatial mobility goes together with (re-)employment, whereas this relationship does not hold for the U.S. This aspect will be analysed in detail by means of multivariate analysis.

Determinants of (Re-)employment

The likelihood of post-move employment (unemployment) among the pre-move unemployed is related in this section to personal characteristics, migrant/non-migrant status, and the local unemployment rate. Personal characteristics include sex, age, education, and household status. Personal characteristics are

defined as dichotomous variables similar to those in Table 2. Occupational information is unavailable in the Dutch data for the unemployed at $t + 1$, and cannot be included in the analysis. It is expected that both education and family responsibility will increase the likelihood of post-move employment, whereas increased age and a high local unemployment rate will lower this likelihood. (For a detailed discussion of the determinants of (re-)entry into employment and empirical results for The Netherlands see Van Dijk and Folmer 1985.) Of particular importance to the analysis is a dichotomous variable set to one for migrants. This variable is related to the job information and job matching mechanisms in both countries. For the U.S. it corresponds (to a large extent) to job search outside the home region; for The Netherlands it refers to migration induced by successful job search via the formal information channels and the Labour Exchange. The estimated coefficient for this variable provides useful information about the relative efficiency of job search in both countries.

Based on the microdata samples described in Table 1, the number of individuals unemployed at t was 1,081 (with correction-weights 1030) and 1,433 respectively for The Netherlands and the United States. The dependent variable for each observation in this analysis was set to one if either a migrant or nonmigrant was employed $t + 1$, and zero if unemployed at that time. The estimation procedure and the interpretation of the coefficients is similar to the migration model in the previous section. Binary logit estimates of the determinants of post-move employment are listed in Table 5. On the basis of the overall

TABLE 5. Determinants of (re-)Entry of Unemployed: Binary Logit Estimates[a]

Variable		NETHERLANDS Estimate	NETHERLANDS St. err.[b]	NORTHEASTERN UNITED STATES Estimate	NORTHEASTERN UNITED STATES St. err.
GM	Grand mean[c]	−0.68	0.27**	1.59	0.36***
sex(1)	male	0.00		0.00	
sex(2)	female	−0.26	0.23	0.48	0.20**
age(1)	15–24 years	0.00		0.00	
age(2)	25–29 years	−0.24	0.24	−0.29	0.35
age(3)	30–34 years	−0.62	0.26**	−0.55	0.37
age(4)	35–49 years	−0.67	0.24***	−0.29	0.30
age(5)	more than 50 years	−1.70	0.27***	−0.26	0.32
educ(1)	< 7 years of school	0.00		0.00	
educ(2)	7–9 years	0.48	0.18***	0.82	0.21***
educ(3)	10–12 years	0.94	0.19***	1.10	0.33***
educ(4)	> 12 years	1.27	0.26***	2.24	0.45***
size(1)	household size = 1	0.00		0.00	
size(2)	household size = 2	0.28	0.22	0.37	0.27
size(3)	household size ≥ 3	0.54	0.21***	0.25	0.23
migr(1)	non-migrant	0.00		0.00	
migr(2)	migrant	1.66	0.56***	0.08	0.26
urat(1)	reg. unempl. low	0.00		0.00	
urat(2)	reg. unempl. high	−0.29	0.15*	−0.34	0.20*

[a] All variables, as well as the microdata samples, are defined in the text. The logit estimates are based upon 1,081 (weighted 1,030) and 1,433 observations for The Netherlands and Northeastern United States respectively.

[b] See Table 3.

[c] Estimate for the reference group, with characteristics: male, non-migrant, age 15–24, < 7 years of schooling, household size = 1, at t living in a region with unemployment rate below the national average. The other coefficients are differences on the log-odds scale with regard to the grand mean. Occupational information for the unemployed at t was only available for those who were employed at $t + 1$ and thus occupation was deleted from the analysis.

goodness of fit the conclusion can be drawn that the estimated model performs very well for both countries.

Before turning to the results for the migration variable the estimates for the control variables will be discussed. For both countries, the likelihood of (re-) employment among the unemployed at t is significantly increased by educational achievement and is decreased significantly by a high local rate of unemployment. The results indicate that the impact of education, however, is much more important in the U.S. than in The Netherlands. Although increased age significantly reduces employment incidence in The Netherlands (compared to the youngest unemployed workers in the sample), age is not a significant determinant of the equivalent likelihood in the United States. Females have a relatively high probability of becoming (re-)employed in the U.S., whereas for The Netherlands this variable is not significant. The result for The Netherlands is probably due to the fact that only singles and heads of households are selected for the present analysis. When all unemployed females are included in the analysis the results for The Netherlands are similar to those for the U.S. (see Van Dijk and Folmer 1985). Household size is only a significant variable for The Netherlands when the household embraces three or more persons. A possible explanation might be that in The Netherlands employers prefer workers who have a family responsibility.

Of particular interest in Table 5 is the lack of significance of the migration variable for the U.S. and, by contrast, the highly significant estimate for this variable in The Netherlands. In The Netherlands, migration goes together with a doubling of the likelihood of (re-)employment compared to the reference group.[5] As pointed out above, this strikingly dissimilar result is related to the significantly different impact of the labour market information system in The Netherlands on individual job search. In particular, spatial job search in The Netherlands is not significantly associated with "speculative" migration. Our results suggest that, whenever possible, an unemployed individual in The Netherlands contracts for employment elsewhere, and then engages in a move. The public employment service and the social security system in The Netherlands is designed to facilitate such spatial job matching. The upshot of this section is that compared to a truly national labour market information system speculative migration is highly inefficient in terms of job search success.

6. CONCLUSIONS

This paper has addressed for The Netherlands and the United States the extent to which unemployment triggers migration, and the success of post-migration job search. A major institutional difference in the job search process between the two countries lies in the role of the public employment service and the social security system. Unlike its counterpart in the United States, the public employment service in The Netherlands is national in scope and well accepted as one of the primary sources of labour market information by both prospective employees and employers. Tabulations of Census microdata for both countries indicate that while premove unemployment rates for migrants exceed those for

[5] An interesting feature appears when for The Netherlands the (re-)employment model is not only estimated for singles and heads of households, but for spouses as well. The effect of migration on the likelihood of (re-)employment remains the same for singles and heads of households. However, the (re-)employment chances for spouses are sharply reduced by migration. This can be explained by the fact that the migration decision is a family decision. A family decides to move when the employment probabilities for the head improves, even when it negatively affects the re-employment chances of the spouse (see Van Dijk and Folmer 1983 for further details).

non-migrants, post-move unemployment rates for the premove unemployed are lower for migrants only in The Netherlands.

The multivariate analyses indicated, that after controlling for personal characteristics, personal unemployment increases the likelihood of labour force migration in the U.S. In The Netherlands unemployed mainly engage in migration when a job has been found. The most striking difference between the two countries appears with regard to local labour market tightness. For the U.S. a high unemployment rate increases the likelihood of migration, where for The Netherlands just the opposite is true. This result suggests a strong likelihood of "speculative" migration associated with spatial job search in the United States which is not a feature of labour markets in The Netherlands (and Western Europe in general). Also, a significant link exists between migration and post-move employment for unemployed workers in The Netherlands, with no such relationship in the United States. This result, which reinforces the earlier results in the paper, again suggests the critical role of a comprehensive national labour market information system in impacting the efficiency of (spatial) job search.

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