

## TO WORK ONESELF OUT OF POVERTY: THE DUTCH EXPERIENCE 1989–96

BY JOLANDA VAN LEEUWEN

*Social and Cultural Planning Office, Den Haag, the Netherlands*

AND

JEROEN PANNEKOEK

*Statistics Netherlands, Voorburg, the Netherlands*

This paper investigates the effect of finding work by one of the household members on the probability of escaping from poverty in the Netherlands. For households with non-active heads, finding work by the head of the household is the most important (investigated) event connected with exiting poverty, nearly a third of all poverty endings. However, finding a job by the head of the household does not guarantee one leaving poverty. In practice, the success rate yields 25 percent. A multivariate analysis shows that finding a job by the head of the household increases the chance of leaving poverty with 22 percent points. So, some exits from poverty are a result of other factors or are due to selectivity of the job-finders. This difference is much larger when partners or (adult) children find jobs.

### 1. INTRODUCTION

In 1995 the Dutch government, partly in response to public pressure, recognized the fact that poverty exists even in a comparatively wealthy country such as the Netherlands. In its report “De andere kant van Nederland” (“The other side of the Netherlands”)—a title referring to Harrington’s “The other America” (1962)—the government argued that financial poverty and social exclusion are different manifestations of the same problem, namely the fact that a large group of people are sidelined for too long. Social exclusion applies especially to groups excluded from employment for protracted periods, partly because of their lack of a place in the social environment which employment in itself creates and partly because their income is so inadequate as to block access to other social contexts such as membership of a sports club or inviting someone round for dinner. As seen from the viewpoint of the government, the promotion of labor force participation therefore has primacy in combatting poverty and social exclusion.<sup>1</sup>

In order to gain insight into the current state of Dutch poverty, the underlying causes and the part played by government policy, a Poverty Monitor is

*Note:* An earlier version of this paper was presented at the 25th General Conference of The International Association for Research in Income and Wealth, Cambridge, U.K., August 23–29, 1998. Participants of that conference are thanked for their comments. Furthermore, the authors would like to thank Rens Trimp for making the data accessible for this research and Michiel Ras and Kees Zeelenberg and two referees for suggestions.

<sup>1</sup>Apart from the importance of labor force participation for the individual household there is also a macro-argument for assigning the maximum possible role to employment in combatting poverty. The more people there are in employment the greater the economic base for funding the social security system, while social security spending is reduced. This increases the possibility of sustaining social security at a comparatively high level.

published each year. This paper is based on an improved version of the model used for the Poverty Monitor 1998 (SCP and CBS, 1998).

Roughly one in six households in the Netherlands is living on an income below the low-income level. Of these some 60 percent are part of the labor force (of whom a third are in employment), while 40 percent do not form part of the labor force (i.e. pensioners and those being unfit for work). These figures make clear that increasing the labor force participation rate is not sufficient in itself for combatting poverty. Paid employment is not a genuine prospect for a large proportion of non-working people on a low income. This not only applies to the older unemployed and those unfit for work, but also to a sizeable group of young long-term unemployed people and other inactive individuals (such as single mothers) who have very poor prospects of finding paid work. Besides this, finding work is not always enough to escape from poverty. Some employed are still below the low-income level.

This paper examines the ability of individuals forming part of the labor force and the members of their household to escape from poverty and the role of getting a job in this process. In particular, we try to answer the question: how successful is the strategy of finding a job, i.e. what is the effect of finding work on the prospects of getting out of poverty?

The analyses in this paper were conducted on the Income Panel Survey (IPO) 1989–96 of the Statistics Netherlands. This is a sample of some 75,000 persons aged 15 years or over (core individuals) drawn from the registers of births, marriages and deaths of municipalities, on whom data is obtained from the Tax Department. It contains information about the incomes of these core persons and their household members. Besides the general feature of low attrition of an administrative source, several institutional circumstances make these data in the Netherlands a good source for studying poverty spells. The tax basis is relatively broad as most public sector transfers such as old age, national assistance, disability and unemployment benefits are subject to income tax. So, income derived from such transfers is recorded in the data. However, some income-components are not recorded in this way: allowances of relatives, alimony for children, and the income of freelancers (mostly women) when their income is below a certain level.<sup>2</sup>

The core individuals in this IPO are followed over time. Analyses are conducted at individual level, so that the characteristics of the household to which the core individual belongs during a certain period can also be traced. Use is made of all “PAYE cards” such that the date a person finds a job is known. This information makes it possible to create income data on a monthly basis. On the other hand the household composition in fact represents the situation of December 31, but is assumed to be the same during the whole year.<sup>3</sup> Furthermore,

<sup>2</sup>Alimony for children is neither deducted from the income of the parent paying the alimony nor added to the income of the parent receiving the alimony. The same holds for allowances of relatives. Although freelancers (working people without a labor contract) with an income below the tax border (about Dfl 10,000 in 1998) do not have to pay taxes, they sometimes do fill in tax returns. Then their income is registered. Some income-components that are not subject to income tax, like student aid or child benefit, are obtained from other governmental administrative sources or are simulated respectively.

<sup>3</sup>This means that when two persons are married in a certain year that they are assumed to be together the whole year and that the household income in that year is formed by the income of both persons.

when there are no changes in the source of income of any of the household members, the yearly income is received from the data. Due to this construction of the data, outflow from poverty is observed more often at a multiple of 12 months poverty duration. This caused some difficulties for which solutions had to be found.

This paper is structured as follows. The definition of poverty we use in this paper is given in Section 2. Section 3 provides an impression of the dynamics in the poverty situation and the labor market situation. The escape prospects are analyzed in Section 4 on the basis of a multivariate model. This is a rather technical section which pays attention to methodological aspects. The resulting effect of finding work on the probability of leaving poverty is discussed in Section 5. The final section provides a summary of the findings.

## 2. DEFINITION OF POVERTY

Poverty is defined here in absolute terms, i.e. a household is poor when household income is below an absolute low-income level. This low-income level is set at 16,000 guilders a year for a single householder at 1990 prices.<sup>4</sup> This figure is converted with the aid of a price index figure and an equivalence scale<sup>5</sup> into low-income levels for other types of households and other years.

The low-income level lies above the statutory minimum and above the half mean income, which is often used as poverty line for international comparisons.<sup>6</sup> For households consisting of two or more persons (except for a one-parent family with one child) it even lies above the net minimum wage. So, the low-income level is in fact not that low. However, in the Netherlands it is often used to indicate the bottom of the income distribution. Here, the low-income level is used as synonym for poverty-line, which is reasonable in national perspective.

Being under the low-income level does not necessarily mean an immediate problem, but certainly becomes a problem if the situation persists. In this paper, a low-income period of at least two years is regarded as lengthy. An individual is, therefore, considered to form part of the poor population if he or she has for the past two years or more formed part of a household with a household income below the low-income level.

From now on the research is restricted to the poor population of working age: all people living in a household with an income below the low-income level for at least two years with the exception of persons from households with the head being a student, single householders aged 65 or over, couples without children and

<sup>4</sup>This poverty line is drawn at the statutory minimum of 1979 which was the highest statutory minimum in the past 20 years.

<sup>5</sup>The equivalence scale used is based on the expenditure behavior of households of different types (Schiepers, 1993; a short description in English of an earlier version of the method is given in Schiepers, 1992). For a single householder the equivalence factor is taken to be 1. For another adult person in the household, 0.38 is added to the factor. For each minor child the factor is raised by 0.30 for the first child, decreasing to 0.15 for the fourth child and other children. These additional factors also depend on the age of the oldest child.

<sup>6</sup>The equivalence scale used here yields 1 for the first adult, 0.5 for other adults and 0.3 for children under 18.

the head aged 65 or over and non-family households.<sup>7</sup> In our data and setting, a period of poverty might start after January 1991 for households who are observed to cross the low-income level downwards after January 1989.

Leaving poverty for a short period is no serious relief. Therefore, only the people who remain clear of poverty (after extracting themselves from poverty) for at least one year, are assumed to have escaped from poverty. People exiting poverty, therefore, cross the low-income level upwards before January 1996. So, the analysis in this paper is based on rather short periods of poverty.

### 3. THE RELATIONSHIP BETWEEN DYNAMICS IN THE POVERTY AND LABOR MARKET SITUATION

Finding work by no means always coincides with an immediate escape from poverty. A large group of working poor are self-employed. For others, the relation between the low-income level and the net minimum wage is an important factor.<sup>8</sup> Only for single householders is the minimum wage above the low-income level. The number of people in employment earning the minimum wage is not, however, particularly large. In 1996 some 5 percent of all employees earned the minimum wage (CBS, 1999). In addition, part-time workers can also end up around or below the low-income level even if a full-time wage would help them out of poverty.

So, it is possible that the acceptance of work does not immediately result in exiting from poverty but it may lead to work with sufficiently high pay in the long run. Those being in employment have the possibility of moving to a higher level of income through promotion, working longer hours or switching to a better-paying employer so that they are no longer in a situation of poverty.

In addition for couples, one partner being in work can encourage labor force participation by the other partner as the income of the partner in work is no longer means-tested. In the case of single householders and single parents, being in work may reduce the financial disincentives to entering into relationships (in the form of means-testing and benefits being less than proportional to the number of household members), thus potentially leading to an escape from poverty in the longer term.

In Table 1 the dynamics in the poverty situation and the dynamics in the labor market situation are viewed in relation to each other for people being poor

<sup>7</sup>A household is called a non-family household, when any person living in the household does not belong to the family in a more restricted sense, like grandparents, grandchildren, or lodgers. Also in the case that, for instance, two sisters are living together, the household is called a non-family household.

<sup>8</sup>The statutory gross minimum wage is a fixed amount irrespective of household composition, but tax effects cause the net minimum wage to depend on the household composition. For single householders the minimum wage is above the low-income level, while for couples without children the minimum wage is below the low-income level. In addition, families (with the exception of one-parent families with one child) remain below the low-income level despite the addition of child benefit as the latter is not sufficient to cover the extra costs of children. For couples with one or two children the minimum wage plus child benefit in 1996 was some 21–22 percent below the low-income level, and for one-parent families with two children 4 percent. Furthermore, for young people under 23 years, the net minimum wage is, dependent on their age, considerably lower.

TABLE 1  
DYNAMICS IN THE POVERTY SITUATION IN RELATION TO DYNAMICS IN THE  
LABOR MARKET SITUATION, 1995 (%)

	Is in poverty in 1995		
	Leaves Poverty	Stays Poor	Total
A household member finds work of which <sup>a</sup>	4.4	14.2	18.6
Head of household finds work	3.2	9.0	12.2
Partner finds work	0.5	1.9	2.4
Child finds work	0.7	3.3	4.0
No household member finds work	9.6	71.8	81.4
Total	14.0	86.0	100.0

*Notes:* <sup>a</sup>Hierarchical classification from top to bottom.

*Source:* IPO 1989–96.

in 1995. The focus is on the outflow from poverty associated with finding work by one of the members of the household.

From this table it is evident that the exit from poverty associated with finding work by one of the members of the household is not particularly great. About 3.2 percent of the surveyed poor population of 1995 (996 thousand persons) escape from poverty in connection with the head of the household finding work. To this is added a further 0.5 percent in connection with the partner finding work and another 0.7 percent in connection with a child finding work. By contrast some 9.6 percent managed to extract themselves from poverty without one of the household members finding work. The majority of these had an already working head of the household. Besides, by changes in the labor force participation rate of household members, escaping from poverty might also be related to changes in the household composition (see also Bane and Ellwood, 1986).

Furthermore, finding work is not a guarantee for escaping from poverty. Even more, the table shows that many poor people remain in poverty despite the fact that the head, the partner or a child has found work.

#### 4. MULTIVARIATE ANALYSES OF THE ESCAPE PROSPECTS

About a third of the terminations of poverty for households with a non-working head correspond with finding work by one of the members of the household, most often the head of the household. Another third might have a relation with the change in household composition which happened at that time. However, a third of exits from poverty by these households are not attributable to one of the investigated events. For households with a working head, up to three-quarters of exits of poverty remain unexplained.

An explanation might be that those in employment (heads, partners or children) have the possibility of moving to a higher level of income through promotion, working longer hours or switching to a better-paying employer so that they are no longer in a situation of poverty. Or there might be some other changes in the household income. Therefore, one should be careful with interpreting “success rates,” i.e. what proportion of individuals undergoing an event in fact end

up escaping from poverty. The event observed is not necessarily the event that causes the exit from poverty. For instance, when a child leaves the parental home, it is possible that the parental household then escapes from poverty due to the fact that the head of the household is promoted. With the aid of a multivariate analysis, the effect of finding work on the prospects for getting out of poverty can be determined more accurately. This section discusses the results of the analysis.

#### 4.1. Calculation of the Logistic Regression

The link between the occurrence or non-occurrence of an event—in this case an exit from poverty—and various characteristics that can change over time is estimated with the aid of a logistic regression. Logistic regression is applicable to observations with a discrete time, in this paper months, and can easily handle time varying explanatory variables. The analytical population is built up of all individuals “at risk” of the event under investigation; in the analysis in question this concerns individuals in households on a low income for at least 24 consecutive months. For each month in which they belong to the “risk group” these individuals constitute an observation, i.e. they form a case for each month in which they remain continuously in poverty after the aforementioned two years.

An advantage of this method is that the investigated link can readily be estimated, with the aid of a maximum-likelihood estimate, allowing for time-dependent variables and censored data, i.e. uncompleted poverty spells<sup>9</sup> (see for instance, Allison, 1984).

To introduce the model used, let  $y_{i,t}$  denote the variable indicating whether individual  $i$  has escaped from poverty at time-point  $t$  ( $y_{i,t} = 1$ ) or not ( $y_{i,t} = 0$ ). The expected value of  $y_{i,t}$  is the exit probability denoted by  $p_{i,t}$ . In the logistic regression model, a linear model is formulated for a transformation of the probabilities, defined by

$$(1) \quad g_{i,t} = \log\left(\frac{p_{i,t}}{1-p_{i,t}}\right)$$

If  $g_{i,t}$  varies from minus infinity to plus infinity, then  $p_{i,t}$  varies between 0 and 1, and thus the predicted probabilities remain within the allowable range.

It is assumed that the probability of escaping from poverty and subsequently staying out of poverty for at least one year depends for person  $i$  at time-point  $t$  on various personal and household characteristics and changes therein, indicated by the formula

$$(2) \quad g_{i,t} = \beta_1 + \sum_{k=2}^K \beta_k x_{k,i,t}$$

in which  $x_{2,i,t}, \dots, x_{K,i,t}$  are various characteristics and events for individual  $i$  at time-point  $t$ .

The usual approach to estimating a logistic regression model is to use maximum likelihood (ML) (see e.g. McCullagh and Nelder (1989, ch. 4) for details).

<sup>9</sup>A disadvantage is that the number of “observations” can become very substantial: persons  $\times$  number of months in which they have been in poverty for more than two years. Here the number of “observations” is some 73,000, which is large but not unmanageable.

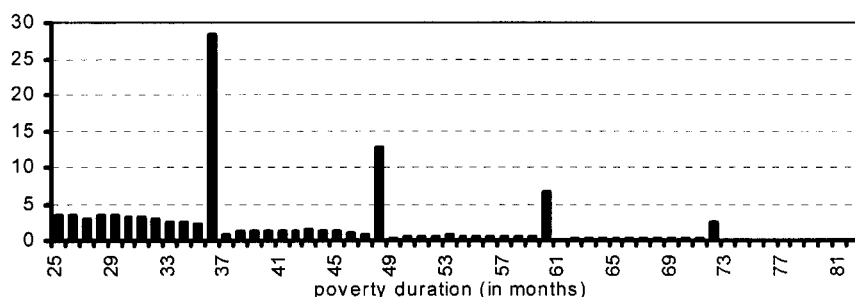
One of the assumptions underlying this approach is that the observations are independent. This assumption is questionable for the application in this paper since there are repeated measurements (at a number of time-points) on the same individuals and these measurements are likely to be correlated. Now, it is well known that the ML estimator of the logistic regression parameters remains a consistent estimator if the independence assumption is violated (see e.g. Royall, 1986). So, for large samples the usual ML estimator will be approximately unbiased. However, the usual estimator for the standard errors of the regression parameters (based on the assumption of independent observations) will be biased if this assumption is violated and this bias does not reduce if the sample size increases. Therefore, the regression parameters are estimated using the standard ML estimator, but the associated standard errors are estimated using a “robust” estimator due to Huber (1967) and White (1980) that takes deviations from the independence assumption into account. In particular, the robust estimator retains the usual assumption that observations on different individuals are independent but allows for correlations between the observations on the same individuals. This robust estimator of standard errors is optionally available in several statistical software packages, including the package “STATA” which was used for the application in this paper.

#### 4.2. Results of the Logistic Regression

In the data used the temporal accuracy of the time-dependent variables is not the same: the losing or finding of work and resulting entries into and exits from poverty are known to the day and are translated into monthly data, while changes in the household composition and their entries into and exits from poverty are observed only once a year.

When there are no investigated changes in the household composition or in the labor market situation for any member of the household it is still possible that the household income falls below the low-income level in the one calendar year and rises above it in the next on account of a change in the number of hours worked, promotion (higher pay for the same number of hours) or change in allowances or additions to the income.

Due to the construction of the data, the outflow from poverty occurs more often at a multiple of 12 months poverty duration. Figure 1 provides an overview



Source: IPO 1989–96.

Figure 1. Percentage of Completed Poverty Spells by Duration of Poverty

of the duration of poverty in months given an exit from poverty. This reveals a prominent clustering of the endings given at multiples of 12 months.

Working with yearly based data, instead of working with monthly based data, would deal with this problem. However, some changes in labor participation would then coincide with changes in household composition. So, information about the effect of finding work on exiting from poverty would be lost. Therefore, we used the monthly based data and made some adjustments to the estimation equation and to the way effects are calculated.

- (1) Duration of poverty in the estimation equation is measured in whole years.
- (2) When there are no changes in the source of income, any change in income is observed in the month of December. Therefore, it is necessary to include a dummy for the month of December into the regression. Furthermore, a cross-term (December  $\times$  socio-economic category of head) is added to the model, because it is likely that chances to get an increase in income without changing the source of income will differ between employed, self-employed and non-working heads.
- (3) By use of the estimated parameters, the baseline outflow probability is calculated for each poor person in 1996 that he (she) will leave poverty some month in 1997 (and will stay non-poor for at least a year) while none of his (her) characteristics change. In the data, this kind of exit from poverty can only happen once a year, on which the estimated parameters are based.<sup>10</sup> Next, the outflow probabilities are calculated for each poor person in 1996 that he (she) will leave poverty in case the head of the household, the partner or a child in the household will find a job, which happens during some month in 1997, and will stay non-poor for at least a year. The differences of these outflow probabilities can be seen as the effect of finding work and are given in Table 3. (More details can be found in Van Leeuwen and Pannekoek, 1999.)

The logistic regression has been carried out with household composition, socio-economic category of the head and age of the head as categorical variables with a reference category.

There are dummies for December and several events: head, partner or child finds work, child leaves parental home, child returns to parental home, marriage/cohabitation, divorce/death of spouse, household changes into a non-family household; and head turns 65.

Duration of poverty and the number of household members with earnings from employment are included as continuous variables.

Furthermore, cross terms of all variables are added by the month of December and cross terms of head finds work, partner finds work, or a child finds work at the one side, and socio-economic category of the head respectively household composition at the other side.

Insignificant variables were skipped from the regression.

<sup>10</sup>This kind of exit from poverty results when the income increases due to an event which is not observed, like promotion and working longer hours.



The results of the remaining logistic regression are shown in Table 2. The parameters of reference categories of categorical variables are set to 0.

The probability to exit from poverty is indeed much higher in December (due to construction of the data) and when any of the investigated events occur. Furthermore, single householders or households with minor children have a relatively low probability to leave poverty (when nothing happens). On the other hand when more members of a household have earnings from employment, the exit probability is higher.

It is found that the exit probability decreases when poverty duration increases. One should, however, be careful with interpreting this result. The result might be due to some unobserved characteristics instead of duration itself. People with low prospects of leaving poverty (because of certain characteristics) belong to the population at risk for many months. The concentration of such people in the risk set increases when poverty duration increases. Hence, the exit probability decreases when poverty duration increases.

Only heads with a job will possibly enjoy a rise in income due to working longer hours or a promotion. For them the chance to leave poverty in December (by construction) is higher than for non-working heads. Not only will finding a job increase the exit-probability but having a job will also lead to higher possibilities to leave poverty.

By construction, the self-employed can hardly leave poverty during the year, because their tax-registrations are on a yearly basis. This explains the significant lower probability to leave poverty in months other than December, and a probability to leave poverty in December which is even higher than that for private sector employees and civil servants.

The unemployment benefit and the disability benefit are connected with the income received from the last job. These benefits are usually higher than the national assistance. This explains the higher exit-probability for heads with income from national assistance finding a job, because the gain in income will be higher.

When the partner finds work, the chances to leave poverty increase a lot. In particular, partners of claimants of disability benefits can pull the household out of poverty by finding work, because the income of one partner does not reduce the disability benefits of the other partner.

Single householders finding work will leave poverty more often, because the minimum wage is above the poverty line for this household type.

The size of the effects of characteristics on the exit probability is hard to interpret from the estimates given in Table 2. Therefore, the result of some predictions are given in Section 5.

## 5. THE EFFECT OF FINDING WORK ON THE EXIT PROBABILITY

Table 3 gives the group average of the predicted probability of escaping from poverty within a year given that one of the household members has found work in that year minus the predicted probability of escaping from poverty within a

TABLE 2  
ESTIMATED PARAMETERS OF THE PROBABILITY OF NOT BELONGING IN  
THE NEXT MONTH TO A HOUSEHOLD WITH A LOW INCOME AND TO  
CONTINUING DOING SO FOR AT LEAST ONE YEAR, FOR PERSONS FROM A  
POOR HOUSEHOLD IN 1991–5

	$\hat{\beta}$
Constant	-6.17*
December	4.01**
Duration of poverty (in years)	-0.12**
Household composition	**
Single householder	0 <sup>a</sup>
Couple without children	0.51**
Couple with minor children	0.11
Couple with adult child(ren) only	0.91**
One-parent family with minor children	0.10
One-parent family with adult child(ren) only	0.71*
Socio-economic category of the head	**
Private sector employee or civil servant	0 <sup>a</sup>
Self-employed	-0.73**
Unemployment benefit claimant	-0.04
Disability benefit claimant	0.17
National assistance claimant	-0.16
Other non-active	0.40
Number of household members with earnings from employment	0.61**
Events	
Head finds work	6.28**
Partner finds work	2.53**
A child 15+ is finding work	4.09**
Child returns to parental home: consequences for child	4.00**
Households changes into non-family household	3.48**
Marriage/cohabitation	3.57**
Head turns 65	1.22**
Cross terms	
<i>December</i> × socio-economic category of the head	**
Private sector employee or civil servant	0 <sup>a</sup>
Self-employed	1.21**
Unemployment benefit claimant	-1.51**
Disability benefit claimant	-0.96**
National assistance claimant	-1.76**
Other non-active	-1.27**
<i>Head finds work</i> × socio-economic category of the head	
Unemployment benefit claimant	-2.11**
Disability benefit claimant	-1.86**
National assistance claimant	0 <sup>a</sup>
Other non-active	-2.12**
<i>Partner finds work</i> × socio-economic category of the head	
Private sector employee or civil servant	0 <sup>a</sup>
Self-employed	-1.70**
Unemployment benefit claimant	-0.44
Disability benefit claimant	1.89*
National assistance claimant	0.90
Other non-active	-2.16**

TABLE 2—continued

	$\hat{\beta}$
<i>Head finds work × household composition</i>	
Single householder	0 <sup>a</sup>
Couple without children	-0.85
Couple with minor children	-1.69**
Couple with adult child(ren) only	-0.64
One-parent family with minor children	-2.12**
One-parent family with adult child(ren) only	-0.94
<i>Child finds work × household composition</i>	
	*
Couple with minor children	-1.46*
Couple with adult child(ren) only	0 <sup>a</sup>
One-parent family with minor children	-1.93**
One-parent family with adult child(ren) only	-0.42
-2 log likelihood	-3355
Pseudo R <sup>2b</sup>	0.48
Degrees of freedom	41
(n)	73,119

\*\*Significant at 99% level.

\*Significant at 95% level.

<sup>a</sup>By construction.

<sup>b</sup>The pseudo R<sup>2</sup> is calculated as follows: ((LO = log likelihood of the model consisting of the constant term only) - (LM = log likelihood of the actual model)) / LO. This results in a figure between 0 and 1. The value 0 corresponds with no additional explanation by the model and the value 1 corresponds with a model perfect replicating the data.

Source: IPO 1989-96.

year when no events take place.<sup>11</sup> This may be seen as the additional effect of finding work on the exit probability.

Table 3 shows that the probability of escaping from poverty during the following year for members of households of which a non-working head finds work is 22 percent points higher than their probability to leave poverty during the following year when the head does not find work. This means that when all non-working poor heads find work, poverty among them and their household members decreases by 22 percent due to this change in labor participation.

The effect of finding work is higher for heads having income from national assistance. For them the increase in income is higher. Most non-working poor have a national assistance benefit.

Furthermore, it is found that households with adult children have a higher probability of leaving poverty when the head finds work. This might be due to the fact that the income the head will earn is added to the child's income (from employment, benefit or student aid) so that the low-income level is easier to reach. Among the poor, there are however just a few households with adult children only.

<sup>11</sup>In these results the direct effect of finding work (outflow because the income from labor is higher than the income from benefits) and the indirect effect of finding work (which is in fact the effect of having work: outflow because of growing income for those employed, for instance, due to promotion) are combined.

TABLE 3  
EFFECT OF FINDING WORK ON THE EXIT PROBABILITY

	Estimated Additional Effect of Finding Work on the Exit Probability ( $\Delta\%$ )	Observed "Success rates"
Head finds work	22	25
Socio-economic category of the head		
Unemployment benefit claimant	17	17
Disability benefit claimant	20	17
National assistance claimant	29	27
Other non-active	20	31
Household composition		
Single householder under 65	27	27
Couple without children, head under 65	25	37
Couple with child(ren) including minors	17	20
Couple with adult children only	37	56
One-parent family with child(ren) including minors	19	17
One-parent family with adult child(ren) only	36	44
Partner finds work	11	29
Socio-economic category of the head		
Private sector employee or civil servant	15	37
Self-employed	13	28
Unemployment benefit claimant	4	12
Disability benefit claimant	22	50
National assistance claimant	8	17
Other non-active	5	26
Household composition		
Couple without children, head under 65	13	30
Couple with child(ren) including minors	11	27
Couple with adult child(ren) only	13	47
Child finds work	11	17
Socio-economic category of the head		
Private sector employee or civil servant	17	18
Self-employed	19	20
Unemployment benefit claimant	5	15
Disability benefit claimant	10	26
National assistance claimant	5	7
Other non-active	17	17
Household composition		
Couple with child(ren) including minors	11	14
Couple with adult child(ren) only	28	38
One-parent family with child(ren) including minors	6	7
One-parent family with adult child(ren) only	18	23

Source: IPO 1989-96.

The "success rate" of heads finding work is 25 percent. Such rough exit probabilities broken down into socio-economic categories and household compositions are given in the last column of Table 3. A positive difference between the "success rate" and the estimated effect means that some heads finding work leave poverty in practice due to a combination of factors and not only because the head finds work. Furthermore, this difference can be explained by selectivity. Heads which have good prospects on a substantial increase in income by finding

a job, will more often search for a job or accept a job. Less intuitive is the result that the estimated effect is higher than the observed "success rate." This occurs for instance for heads with a disability benefit or heads on national assistance. This might be a result of employers more often accepting young employees, which have in fact lower prospects of leaving poverty by finding work because the minimum wage depends on age.

When all non-working partners find jobs the exit probability becomes 11 percent points higher than the exit probability when nothing happens. This is much lower than the "success rate" of 29 percent. Here both the selectivity process and the other causes play an important role. In almost half of the cases in which the partner finds a job, the head of the household is working. Whereas about 30 percent of poor people belong to a household with a working head.

Partners of active heads and partners of claimants of disability benefits can pull the household out of poverty by finding work. The income of one partner does not reduce the disability benefits of the other partner. So disability benefits do not diminish the work incentives of partners. The national assistance benefit, on the other hand depends on the partner's income. So, partners of national assistance claimants are less inspired to find work. And when they do find a job it is not very likely that they will leave poverty. The same holds for partners of unemployment benefit claimants, because in most cases of Table 3 we are dealing with a type of unemployment benefit which depends on the partner's income.

When a child finds work the additional probability to leave poverty is 11 percent. This percentage is higher for children of working heads.

One must realize that these results may flatter reality. It is possible that people with a (relatively) high possibility that finding work will lead to an escape from poverty, will search for a job and find one. In that case, the predictions from Table 3 only hold for that group; others are even less fortunate. Furthermore, the analysis is based on rather short periods of poverty, living on a low income for a maximum of six years. The exit probabilities for people with longer poverty histories are likely to be lower than the results in Table 3.

## 6. CONCLUSIONS

This paper investigates the effect of finding work by one of the household members on the probability of escaping from poverty in the Netherlands in the first half of the 1990s. In this paper, an individual is called poor when the household income falls below a certain threshold, called the low-income level, for at least 24 months. An individual is supposed to have left poverty when the household income is above the low-income level for at least 12 months.

Only 3.2 percent of people being poor in 1995 (not being pensioners or students) escape from poverty at the moment the head of the household finds work. To this is added a further 0.5 percent if the partner finds work and another 0.7 percent if a child finds work.

For households with non-active heads, finding work by the head of the household is the most important (investigated) event connected with an escape from poverty, nearly a third of all poverty endings. On the other hand, finding a job by the head of the household does not always mean that one leaves poverty.

Only 25 percent of the poor individuals of whom the head of the household found a job, indeed leave poverty.

A multivariate analysis, i.e. a logistic regression, is applied to investigate the pure effect of finding work by household members on the probability of leaving poverty in the following year. For each month in which individuals are poor, they are an observation in the analysis. Since observations on the same individual cannot be treated as independent observations, we use a method that results in a robust estimation of standard errors in the case that the assumption of independent observations is violated.

The estimated parameters are used to approximate the “pure” effect of finding work on the probability of leaving poverty. It is found that the probability of escaping from poverty during the following year for members of households of which a non-working head finds work is 22 percent points higher than the probability for them to leave poverty when the head does not find work. When the partner or a child finds work the additional probability to leave poverty is 11 percent.

These “pure” effects are found to be much lower than the observed “success rates” calculated as the share of poor people indeed leaving poverty when the head, the partner or a child finds work. This means that exiting poverty results from a combination of factors and not only because a household member finds work. Furthermore, this difference can be explained by selectivity. People with high prospects to leave poverty by finding a job are more inspired to get a job.

One must realize that these “pure” effects may still flatter reality. It is possible that people with a (relative) high possibility that finding work will lead to an escape from poverty due to unobserved characteristics, will search for a job and find one. In that case, the predicted effects only hold for that group, others are even less fortunate.

#### REFERENCES

- Allison, P. D., “Event History Analysis. Regression for Longitudinal Event Data,” (Series: Quantitative Applications in the Social Sciences 46), Sage Publications, Beverly Hills, 1984.
- Bane, M. J. and D. T. Ellwood, “Slipping Into and Out of Poverty; the Dynamics of Spells,” *The Journal of Human Resources*, 21(1), 1–23, 1986.
- CBS, “Werknemers die het minimumloon verdienen 1969–1997,” *Sociaal-economische Maandstatistiek*, 2, 18–29, 1999.
- Huber, P. J., “The Behavior of Maximum Likelihood Estimates Under Non-standard Conditions,” *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability*, 221–33, 1997.
- McCullagh, P. and J. A. Nelder, *Generalized Linear Models*, 2nd edition, Chapman and Hall, London.
- Royall, R. M., Model Robust Confidence Intervals Using Maximum Likelihood Estimators, *International Statistical Review*, 54, 221–6, 1986.
- Schiepers, J. M. P., “On the Choice of Equivalence Scales,” *Statistical Journal of the United Nations*, 9, 1992.
- Schiepers, J. M. P., “Equivalentiefactoren volgens budgetverdelingsmethode, 1986–1990,” *Supplement bij Sociaal-economische maandstatistiek*, 5, 32–40, 1993.
- SCP and CBS, *Armoedemonitor 1998*, Social and Cultural Planning Office, Den Haag (Cahier 151), 1998.
- Van Leeuwen, J. M. and J. Pannekoek, “To Work Oneself Out of Poverty: The Dutch Experience 1989–1996,” Research paper no. 9910, Statistics Netherlands, Voorburg, 1999.
- White, H., “A Heteroskedasticity-consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity,” *Econometrica*, 48, 817–30, 1980.