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**To What Extent Is a Transition into Employment
Associated with an Exit from Poverty?**

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To What Extent Is a Transition into Employment Associated with an Exit from Poverty?

by

Taryn Ann Galloway¹

Abstract

A link between lack of employment and poverty is often made implicitly, but can rarely be enumerated in any sort of satisfactory manner. We would therefore like to ask the question: to what extent does acquiring employment increase a poor household's probability of exiting poverty? Register data from the entire resident population of Norway serves as the basis for the analysis. We distinguish between full-time and part-time employment and also include an investigation into the effect transfers have on the probability of exiting poverty, with or without a concurrent change in employment status. Norway with its generous social welfare system and well-functioning labor markets provides a unique opportunity to abstract to a certain extent from many complicating factors in investigating these questions.

Key words: Unemployment, Employment, Poverty

JEL Classification: I 32, J20

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1. Introduction

A link between lack of employment and poverty is often made implicitly, but can rarely be enumerated in any sort of satisfactory manner. In fact, a myriad of issues and problems – even beyond the very basics of defining poverty – immediately present themselves when, in particular, trying to quantify the importance of employment for the prospects of poor households reversing their status as poor. The severity of unemployment, the extent of the social welfare system as well as the distribution of wages in the relevant country all represent complicating factors for any such attempt.

Norway does, however, provide us with a unique opportunity with regards to abstracting to a certain extent from such complicating factors. Obviously, some households will fall through the cracks even in the best social welfare system, but Norway's extensive system of social security nonetheless allows us to assume that poverty due to such factors as disability or loss of employment, even unemployment over several years, is somewhat limited. In addition, Norway has been able to maintain a relatively low level of unemployment over the last decade, something which cannot be said of many of the other European countries with similarly extensive social welfare systems. Finally, a low degree of wage inequality and a redistributive tax and transfer system in Norway implies that employment might just provide a good chance for poor households to actually escape poverty, not just join the ranks of the working poor. In other words, Norway represents a case in which a large number of potential pitfalls can, to a certain extent, be sidestepped when addressing the issue of the importance of employment for lifting households out of poverty.

Broadly speaking, two different approaches for the investigation of the relationship between poverty and employment have been suggested by previous studies. The first, represented by Haveman and Buron (1993), addresses the question of whether estimates of earnings by all adult household members imply sufficient income for households in order to avoid poverty, while the second attempts to model the probability of exiting poverty more or less directly by means of a logit or probit model with various characteristics or events as explanatory variables (see, for example, van Leeuwen and Pannekoek (2002) as well as Oxley, Dang and Antolín (2000)). Jenkins (2000) provides a detailed overview and further references to various methods and approaches applied to modelling income dynamics in general.

Haveman and Buron introduce the concept of “earnings capacity poverty” by posing the question of how much a household would earn given (hypothetical) full mobilization of

earnings capacity among all (adult) members and comparing such earnings capacity with the official poverty line. In order to correct for selectivity in the observations with earnings, the earnings equation was estimated based on Heckman's two-stage method for each (adult) household member, and the earnings thus estimated for each member were then added up to create a measure of "net earnings capacity" (NEC) for the entire household. Corrections were made for employment limitations due to sickness or disability, and adjustments for childcare costs were subtracted before arriving at the NEC for each household. When compared with developments in official poverty, i.e. poverty based on actual income alone, the study provides very useful insights into possible changes in poverty attributable to households' relative ability to create sufficient market income.

A number of qualifications do however apply to such an analysis. As Haveman and Buron (1993) themselves mention, lack of actual job opportunities in the labor market, i.e. constraints on the implicit assumption of full mobilization of earnings capacity, inhibits the extent to which earnings capacity poverty truly reflects the ability of households to avoid poverty. In addition, Haveman and Buron (1993) do not take into consideration transfers or other effects of government policy. In the context of few transfers, this might not represent a severe shortcoming, but in Norway transfers are in many cases extensive and can be based on other characteristics than income, such as the number of children in the household. Some of those transfers – means-tested or otherwise – may even be directly aimed at influencing economic behavior. Such a mix of means-tested and universal transfers greatly complicates the picture of earnings as the sole measure of resources for consumption and introduces a number of behavioral issues also relevant to the earnings equation, but beyond the scope of Haveman and Buron (1993)².

Van Leeuwen and Pannekoek choose a more direct empirical approach by modeling the probability of exiting poverty in the Netherlands with a logistic regression in which finding a job is included as one of many explanatory variables³. We ask a similar question: to what extent does acquiring employment increase a poor household's probability of exiting poverty in Norway? However, our study extends the basic framework suggested by Leeuwen and Pannekoek (2002) in two important ways: first, by distinguishing between different levels of employment, roughly speaking part-time and full-time work, and, second, by incorporating

² A further complication arises when one deals not with an absolute measure of poverty, but instead with one which is relative to the general income situation in the economy, i.e. 50% of median income or similar. Making assumptions of full employment mobilization implies a hypothetical income distribution which may differ greatly from the true distribution that forms the basis of the relative poverty line.

³ Oxley, Dang and Antolín (2000) use a similar approach as part of their comparison of poverty dynamics in Canada, Germany, the Netherlands, Sweden, the United Kingdom and the United States.

an investigation into the effect of transfers on that same probability of exiting poverty, with or without a concurrent change in employment status. Such an analysis allows us to take an initial glance at such issues as disincentives in the transfer system with respect to the prospects of escaping poverty. In other words, if one assumes that exiting poverty – increasing income above a level given by the poverty line – represents a goal for poor households, then do the data suggest that acquiring a job or, rather, obtaining an increase in transfers contributes most to the probability of poor household attaining that goal?

The rest of the paper is structured as follows: the next section explains the exact methods used to define and measure poverty. Section 3 gives a quick overview of the relationship between finding employment and exiting poverty suggested by Norwegian register data, while Section 4 turns to more detailed regression analysis and addresses the issues of model fit as well as the actual results with respect to both employment and transfers. The final discussion section summarizes the findings, considers possible shortcomings and limitations in interpretation and suggests avenues of further research.

2. Definitions, Methods and Data

Construction of the poverty line used here was based on official data from the Norwegian national statistical office, Statistics Norway, and encompasses the entire resident population of Norway in each of the years 1995-1997. More specifically, we use a poverty line given at 50 % of median equivalent income after tax, as described in more detail below, for the entire population in the relevant year⁴.

Household income after tax is defined as described in Table 1. Income data is based on official income tax records and as such does not include income from sources like illegal employment and unpaid household work. In order to avoid potential distortions as a result of large losses on the stock market or negative income from self-employment, negative employment and/or capital income was set equal to zero before calculating total household income.

⁴ See Table A.2 for the poverty line given in Norwegian crowns (NOK) for the years 1995-1997 and Table A.2 for the percentage of poor individuals in the Norwegian population during the period in question.

Table 1: Overview of Income Components

| | |
|--------------------------------|---|
| <i>Market income</i> | = Employment income <ul style="list-style-type: none">• wages• income from self-employment + Capital income, for example <ul style="list-style-type: none">• interest• stock dividends• sale of stocks |
| <i>Total income</i> | = Market income + Transfers, such as: <ul style="list-style-type: none">• welfare• old-age pension• unemployment benefits• child allowance• student grants |
| <i>Income after tax</i> | = Total income - taxes and negative transfers |

We make use of two different equivalence scales to compare households of various sizes in our analysis and it is this equivalent income (after tax) that provides the basis for determining both the poverty line and the poverty status of households. In other words, the poverty line is a construction based not on actual household income levels alone. Rather, a household is classified as poor if the equivalent income (after tax) of its members lies below the poverty line. While this method makes comparison of households with different compositions possible, equivalence scales do entail underlying assumptions about the extent of the economies of scale within households, and poverty analysis can, therefore, be highly sensitive to the scale used. Our first scale, the square-root scale, assigns each household member an equivalent income by dividing total household income (after tax) by the square root of the number of household members. The second scale, the OECD scale, applies different weights to adults and children: the first adult receives weight 1, further adults the weight 0.7 and each child (under 16) the weight 0.5⁵. Total income is then divided by the total weight for household members and the amount thus obtained is allotted to each member. All household members therefore receive the same equivalent income regardless of who actually earned the income. It is on the basis of these equivalent incomes that we calculate the poverty

⁵ Another scale in common use is the modified OECD scale, which assigns a weight of one to the first adult, 0,5 to the second adult and 0,3 to each child (under 16). In other words, the new, modified OECD scale entails larger economies of scale than the older OECD scale. For the range of household sizes most common in this study, however, the modified OECD scale is almost identical to the square-root scale.

line at 50 % of median equivalent income for individuals in the (entire) population and classify the households as poor.

The square-root scale entails larger economies of scales within a household than the OECD scale, and, as a result, the two scales can therefore lead to different and even conflicting results with respect to the relative level of poverty among certain groups in society. A Norwegian study of the sensitivity of poverty results with the use of different equivalence scales in conjunction with a relative poverty line given at 50% of median equivalent income indicates that the level of poverty in the entire population is generally larger when an equivalence scale with larger economies of scale is used (Lund and Aaberge, 1999). More importantly however, certain demographic groups can be highly sensitive to the choice of equivalence scale depending in particular on the type of household composition prevalent in those groups. Use of two different equivalence scales will therefore be particularly useful in helping us establish the extent to which our results are robust to such considerations.

A previous study of poverty given in Aaberge et al. (1999) points out that annual income might not provide the best basis for measuring (income) poverty. Poverty numbers for any given year contain a large number of cases in which the household or person are experiencing nothing more than a temporary state of low income⁶, so the strict criteria used here ensure that our analysis is not tainted by large numbers of households experiencing such short-term stints of poverty for whatever reason. Similarly, unemployment may also be just a temporary state for many households. We therefore restrict our population for analysis to those households that were classified as poor and had no working members in both of the years 1995 and 1996 in order to limit the effect of such fluctuations in the poor population. In addition, we look only at households headed by a person of working age (16-68). In other words, the sample we study includes all those working age households that did not experience a change in either poverty or employment status for at least two years. In the context of this study we do not include poor *working* households, because the demand that the none of the household's members were employed for the preceding two year period hopefully helps us to distill the effects of acquiring employment from such effects as increased working hours or increased wages. It is the former effect, not the latter, we are particularly interested in here.

Data on jobs was obtained from the employment register of the Norwegian National Office for Social Insurance as provided by Statistics Norway. We include information on

⁶ See, for example, Aaberge et al. (1999) or Galloway (2002).

working hours associated with employment based on the categories as contained in the original data: full-time (30+ hours per week), extended part-time (20-29 hours per week) and part-time (under 20 hours per week). An individual who has had more than one job during the course of the year is classified based on the job with the ‘best’ characteristics, i.e. full-time if both a full-time and a part-time job are registered. There are, however, many instances of households with positive labor income for which no job is registered in the data. This can have many causes: the person in question may own his or her own business and is therefore not registered as an employee; the wages may be part of a contract not considered a regular employer-employee relationship (such as free-lance work) or the employer has for some reason failed to register the job with the proper authorities by the end of the year. In order to allow for some flexibility in handling such gray areas, we do retain households with (equivalent) labor income under NOK 15 000 in both of the years 1995 and 1996, but consider higher labor incomes as indicative of some type of employment. As such, households with labor income higher than NOK 15 000 in 1995 and/or 1996 are excluded from the population to be studied. Similarly, if a household has a labor income above NOK 15 000 in 1997, we assume that a household member has obtained some type of job during the course of 1997 and group such households into an additional job category (‘labor income, job info not available’) in the regression analysis⁷.

3. Some Basic Descriptive Results

Table 2 describes the poverty status in 1997 of the households in our starting sample of non-employed poor households relative to their employment status that same year. As we can see, a majority of the households (55%) do not acquire any form of employment and remain in poverty, while a portion (around 13%) manages to escape from poverty though remaining without employment. At least one household member obtains some type of employment during the year in about one-third of the households with the OECD scale. A little under one-third of the households manages to escape from poverty in 1997, and that event coincides with a household member finding a job of some type in approximately 17% of the households for the OECD scale. In other words, more than half of the exits from poverty occurred in households in which a positive change in employment status had also taken place⁸.

⁷ Note that this also implicitly allows households classified as non-employed in 1997 to have income up to NOK 15,000 from odd jobs or other types of work not registered as regular employment with Norwegian National Office for Social Insurance.

⁸ We will concentrate on results for the OECD scale in the text and refer the reader to the Appendix for results with the square-root scale.

Table 2: Poverty Status Relative to Employment Status in Household in 1997. OECD Scale.

| <i>Employment status in 1997:</i> | Poor | Not poor | Total |
|------------------------------------|------|----------|-------|
| No working member in household | 55,2 | 12,6 | 67,7 |
| Household member finds : | | | |
| Full-time work | 4,3 | 7,5 | 11,8 |
| Extended part-time work | 1,0 | 0,9 | 1,9 |
| Part-time work | 3,7 | 2,2 | 5,9 |
| Work income but no job information | 6,1 | 6,5 | 12,6 |
| Total | 70,3 | 29,7 | 100,0 |

Another way of approaching this issue – one parallel to modelling the escape probability with logistic regressions – is to look at the ‘success rates’ *within* each of the groups listed above. For example, what percentage of the households in which a member finds a full-time job escaped from poverty in 1997? These probabilities are listed in Table 3.

Table 3: Percentage of Households Escaping Poverty within Groups According to Employment Status. OECD Scale.

| <i>Employment status in 1997:</i> | Poor | Not poor | Total |
|------------------------------------|------|----------|-------|
| No working member in household | 81,4 | 18,6 | 100,0 |
| Household member finds : | | | |
| Full-time work | 36,3 | 63,7 | 100,0 |
| Extended part-time work | 52,8 | 47,3 | 100,0 |
| Part-time work | 62,4 | 37,7 | 100,0 |
| Work income but no job information | 48,4 | 51,6 | 100,0 |
| Sample population as a whole | 70,3 | 29,7 | 100,0 |

Table 3 seems to suggest that a positive change in employment status does improve a household’s chance of escaping poverty, but interpretation of these figures must be tempered with a great deal of caution. Table 3 fails to take into account other characteristics that may be unevenly distributed among the various groups. Those characteristics might just be the true reason for the differences with respect to reversals in poverty status and could include other changes that took place in the same year, such as marriage or separation, or demographic features like the age or education of the head of the household. In an extreme case, it is conceivable that obtaining employment is accompanied by an increase in transfers from the government or improved access to certain types of social security measures, and it may just be

those factors that lift the households out of poverty, not the change in employment or at least not the change in employment alone.

Any of a number of different considerations could therefore prevent the seemingly straightforward correlations suggested in Table 3 from having any force in explaining the reversals in poverty status. It is therefore we turn to modelling the probability that a household exits poverty in 1997 with the aid of logistic regressions in hope of restricting the extent to which the above-mentioned factors obscure our ability to draw any sound conclusions.

4. Regression Results

As mentioned above, we limit our sample to those households that were classified as poor and had no working members in both of the years 1995 and 1996 and model the probability of exiting poverty in 1997. We make use of a variable on the change in employment status in the households and divide that variable into five categories based on the type of employment obtained. Full-time employment encompasses 30 or more hours a week, 'extended part-time' refers to a job with 20-29 hours a week and the term 'part-time' is used for employment of less than 20 hours a week. As described above, one additional category is included for observations with significant labor income but no employee relationship registered in the data. Basic demographic characteristics such as the age, age squared, education and the ethnic origin of the household head are included in the model, as well as changes in household composition. The effect of acquiring a job is allowed to vary for the different types of households by means of an interaction term. The level of transfers in 1996 is considered the starting level of transfers from the perspective of analysis of 1997 so that a variable capturing the change in Norwegian crowns (NOK) of transfers from the government to the households from 1996 to 1997 can be incorporated into the model. The effect of the latter variable is allowed to vary over different employment categories and household types by means of appropriate interaction terms.

Finally, a major difference can be expected in many of the variables depending on whether the household is headed by a single adult or a couple, i.e. with respect to the number of potential adult earners in the household. In order to increase the flexibility in our model along such lines, we run two different regression models, one for single adult households and one for households headed by a couple. Within each of the two regression models, household categories are further characterized by the children in the household: no children, youngest child pre-school age (under 7) or youngest child 7 years of age or older. This classification is

based on the intuition that childcare considerations are important elements in determining parents' employment patterns as well as eligibility for certain types of transfers, both of which can in turn affect poverty status.

Estimates from the logit regressions are presented in Tables A.4 and A.5 in the Appendix. The actual level of the coefficient estimates for the two different equivalence scales will obviously vary to some degree, but much of the general pattern in terms of the sign of the effects and the relative magnitude is the same for the variables with both scales. For the sake of readability, we present and discuss results for the OECD scale in the body of the article and refer the reader to the Appendix for some basic results based on the model for the square-root scale. Any major discrepancies in the pattern of results for the two different equivalence scales will, however, be noted.

In the following subsection we first address the issue of model fit. After that we will take a closer look at the effect of acquiring employment as well as the effect of transfers in the model. We do include some basic interpretation and discussion there, but it is the final discussion section which deals with broader issues such as possible potential shortcomings, limitations in interpretation and potential for further research.

Model Fit

Table 4 gives an example of the extent to which our model can accurately reproduce observed percentages. We calculate the column entitled "model predictions" by first determining each household's probability for leaving poverty in 1997 based on the estimated coefficients and then taking the average over the households with the relevant characteristics. If we use different education levels, we can see that the model is able to produce results that largely reflect the percentages actually observed. Another example according to ethnic origin is given in Table A.6 in the Appendix.

Table 4: Probability of Exiting Poverty in 1997: Comparison of Model Predictions* and Observed Percentages According to Level of Education. OECD Scale.

| Characteristics | Observations | Observed Percentage | Model Prediction |
|-------------------------------------|--------------|---------------------|------------------|
| Middle school or lower: | | | |
| No working member in household | 3 268 | 25,0 | 24,4 |
| Household member finds: | | | |
| Full-time work | 451 | 68,5 | 71,4 |
| Extended part-time work | 80 | 55,0 | 56,8 |
| Part-time work | 190 | 49,0 | 47,7 |
| Labor income, no job info available | 497 | 59,0 | 59,9 |
| High school: | | | |
| No working member in household | 939 | 19,8 | 20,5 |
| Household member finds: | | | |
| Full-time work | 289 | 68,5 | 66,5 |
| Extended part-time work | 44 | 59,1 | 52,7 |
| Part-time work | 110 | 38,2 | 42,6 |
| Labor income, no job info available | 249 | 55,1 | 54,1 |
| Higher education – first degree | | | |
| No working member in household | 189 | 11,6 | 16,7 |
| Household member finds : | | | |
| Full-time work | 68 | 82,4 | 67,4 |
| Extended part-time work | 3 | -- | -- |
| Part-time work | 17 | 47,1 | 44,9 |
| Labor income, no job info available | 31 | 54,8 | 55,2 |

* The probability of escaping poverty in 1997 is calculated for each individual based on the estimated model coefficients and the average is taken over the group with the relevant characteristics.

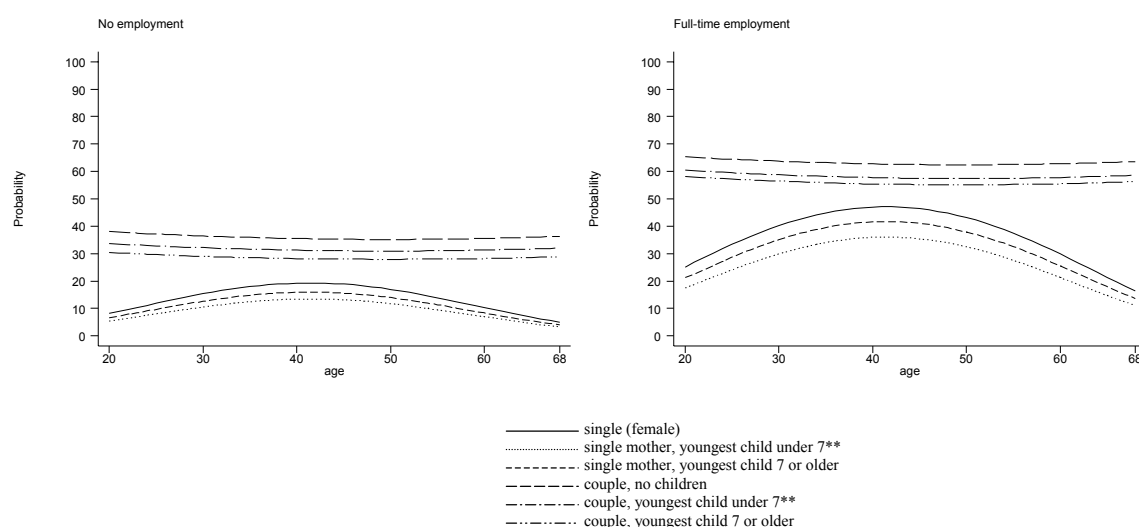
-- indicates that the number of observations in this group was too small for meaningful comparison.

However, comparison of such averages, while useful in establishing the degree to which the model works well, still does little to clarify which of the many attributes or events can be considered truly meaningful and to what extent. As already discussed in the previous section, differences in such aggregate descriptive statistics may only in part be due to the particular characteristic under investigation. A certain degree of selectivity or a non-random distribution of other traits within some of these groups may in fact account for some or all of the differences. The next subsection therefore focuses on analyses that help us to isolate the effects of selected variables of interest.

Effects of Employment

From Figure 1 we can see that acquiring full-time employment approximately doubles the probability of escaping poverty for the various types of reference households. In those figures the head of the household is assumed to be Norwegian with high school education, but the age of the head of household is allowed to vary. We will take a closer look at transfers later on, so we have set both the level and change in transfers equal to zero for the time being.

Figure 1: The Probability of Exiting Poverty in 1997*



* Head of the household assumed to be Norwegian with high school education. Level and change in transfers set equal to zero.

** Note that, although the figure presents an age pattern up to age 68 for the various household types, few observations, if any, would be expected for households with pre-school children headed by an older person.

Figure 1 also indicates that, although acquiring full-time employment has a very large effect on the probability of exit, such employment is far from a guarantee for exiting poverty. This may be due to a number of different reasons which may also vary in their extent and importance in various groups. For the first, our employment variables register the event of obtaining full-time employment during the year, but they fail to take into account when that employment was obtained and how long it lasted during the year. In an extreme case, a household member may have, for example, obtained stable full-time employment with good pay in December of the year. That employment may be sufficient to raise the entire household out of poverty in the long run, but wages from just one month as registered for our 1997 data most likely will not be. Similarly, full-time employment might come in the form of a short-term contract, one which also does not provide enough income seen from the perspective of the entire year. In the case of families in particular, it is even conceivable that low-paid, full-

time employment might not be enough to raise the household above the poverty line, primarily due to the large numbers of mouths to feed. Finally, we have for the time being set transfers equal to zero, but, as we shall see shortly, this assumption is very unrealistic for many of the households we analyze and does effect the probability of exiting both with and without employment.

From the figures it is also interesting to note that age itself has a different effect on the probability of exiting poverty depending on whether the household in question consists of just one adult or two adults; in particular, the age of the head of household plays absolutely no role for couples, while the probability of exiting poverty for single households increases with age up until about 40 and begins to decline rapidly again around the age of 50. Singles seem therefore more susceptible to factors that vary with age, while the pooling of resources from two working-age adults helps to decrease fluctuations due to such considerations.

A positive probability of exiting poverty with no change in employment status can be due to one of primarily two factors: increased capital income or income from odd jobs (up to NOK 15,000). Particularly the former may account for the age pattern as observed for households headed by just one adult. Young (single) households have had less of an opportunity to accumulate savings or other forms of capital which they can utilize in periods of low income. The age effect we observe may originate from this source in a couple of different ways: young households may have already used up such resources in the preceding two years of poverty and therefore have little else to fall back on or it may instead be the case that middle-aged households first start using such resources – selling their homes, cashing in on savings or investments, etc. – or start using them to a larger extent only as low income persists over the course of several years. We also do not take into consideration any form of income equivalent for owner occupied housing, a factor which may be particularly important for older households. In other words, older households may not require as much income in order to maintain their standard of living, because they have already paid off many types of large investments, perhaps long before their current income woes set in. They may also not pursue alternative sources of small income increases in anticipation of receiving an old-age pension in the not so distant future.

The age pattern with respect to the probability of exiting poverty upon finding full-time employment, while reflecting the above-mentioned income factors, also indicates differences in the quality of the employment obtained. A middle-aged person with many years of experience on the job market may be able to obtain employment with better pay despite being out of the job market for at least two years, while younger persons with less

employment experience may have to settle for low-paying jobs after such a two-year stint with no employment and low income. Similarly, older persons who have been unemployed for a couple of years may have difficulty finding good jobs, because employer take into consideration that such employees will soon retire.

Figure 1 shows that single mothers have the lowest probability of exiting poverty both in the case when they continue without employment and when they acquire a full-time job. Households with two potential adult earners fare better than their single counterparts with or without full-time employment, but, among couples, it is also those households with pre-school children that are least likely to exit poverty. That does seem to suggest that the simultaneous demands of childcare and acquiring income present a problem for poor households with pre-school children.

We did include an interaction term in order to allow the extent of the effect from employment to vary for different household types. However, no statistically significant difference in the relative effect of full-time employment can be established for any particular household type in our sample. In other words, the effect of acquiring employment was equally large for all the household types relative to their respective levels without employment.

Table 5: Probability of Exiting Poverty in 1997 According to Employment Status for Reference Households.[#] OECD Scale.

| Household type: | Member of household acquires employment: | | | |
|--|--|-----------|--------------------|-----------|
| | No change | Full-time | Extended part-time | Part-time |
| Single female | 19,3 | 47,0 | (25,9) | (19,6) |
| Single mother, youngest child under 7 | 13,5 | 36,0 | (21,8) | (10,4) |
| Single mother, youngest child 7 or older | 15,9 | 41,6 | (19,4) | (17,0) |
| Couple | 35,5 | 62,8 | 46,5 | (34,4) |
| Couple, youngest child under 7 | 28,2 | 55,5 | 54,3 | 17,1 |
| Couple, youngest child 7 or older | 31,3 | 57,8 | 35,1 | 39,3 |

Probabilities based on employment related coefficients that are not statistically significant from zero are listed in parantheses.

[#] Head of household assumed to be Norwegian with high school education, age 40. All other variables set equal to zero and held constant unless noted.

We make use of Table 5 to investigate the effect of other levels of employment. The same general pattern with respect to age for single households still applies here, but we choose to hold age constant at 40 in Table 5 in order to focus in particular on employment effects. Please keep in mind that age 40 represents a peak in the probability of exiting poverty for single adult households; the probabilities for younger and older single adult households are lower than those listed in Table 5.

The effect of part-time employment is much more ambiguous and far less influential than for full-time employment. Part-time employment under 20 hours a week does not have a statistically significant effect for most of the groups and is even negative for couples with pre-school children⁹. Although part-time employment presumably does not lead to a huge increase in income, one would nonetheless assume some increase has occurred. It is therefore in and of itself noteworthy that no statistically significant effect can be established for most of the groups. The most straightforward explanation for the lack of an effect from part-time work would, of course, be that the income attained from part-time employment is simply not enough to raise households out of poverty.

Extended part-time employment does seem to have a positive effect for couples and that effect, unsurprisingly, is somewhat less than that of full-time employment. It is interesting to note that the effect of extended part-time employment is almost the same as for full-time employment for couples with pre-school children. This most likely reflects the decision of many mothers to return to the job market with working hours somewhat less than that of full-time employment¹⁰. Working hours such as those are most likely not just supplementary income. Employment at that level may in many cases reflect an attempt to balance work and family responsibilities and can therefore in part indicate a choice based on the fact that the income thus obtained is sufficient to support the family or, in other words, raise them above the poverty line.

The 'Redistribution Effect' of Transfers

We now turn to the investigation of transfers, not just as a topic in its own right, but also as a valuable comparison and a complementary analysis with respect to the effect of finding employment. In this context, one must keep in mind that our regression estimates are essentially based on different groups of households – in this case, those that experience an increase in transfers and those who do not. In particular, not all households are eligible for all types of transfers, so the effect of increased transfers observed for the one group may not even be a possibility for another. Further discussion of this type of selection or heterogeneity and possible limitations with respect to the interpretation of the results here will be addressed more extensively in the following discussion section.

⁹ The significantly positive effect exhibited from part-time employment for couples with older children appears larger than the effect from extended part-time employment, which may seem counterintuitive. The effects are, however, not significantly different from each other.

¹⁰ It is by far women who have such employment. See, for example, Kjeldstad og Rønsen (2002) for a discussion of the employment patterns with respect to households with children, with particular emphasis on differences between single parents and couples.

The average level of transfers may in fact also be an important distinguishing feature for some of the household types, one which is not captured sufficiently by our analysis in the previous section. In particular, all families with children in Norway receive a basic child benefit regardless of the household's level of income. As such, one might expect that the distribution of transfers to families with children differs greatly from that for households without children. Table 6 describes the distribution of transfers for the various types of households and confirms this suspicion¹¹. The assumption of zero transfers, as we made in the preceding subsection, is in reality a very unlikely event for households with children but is far more representative for households without children. On average, poor households without children receive far fewer transfers than households with children, and it is single mothers who, on average, have the highest level of transfers.

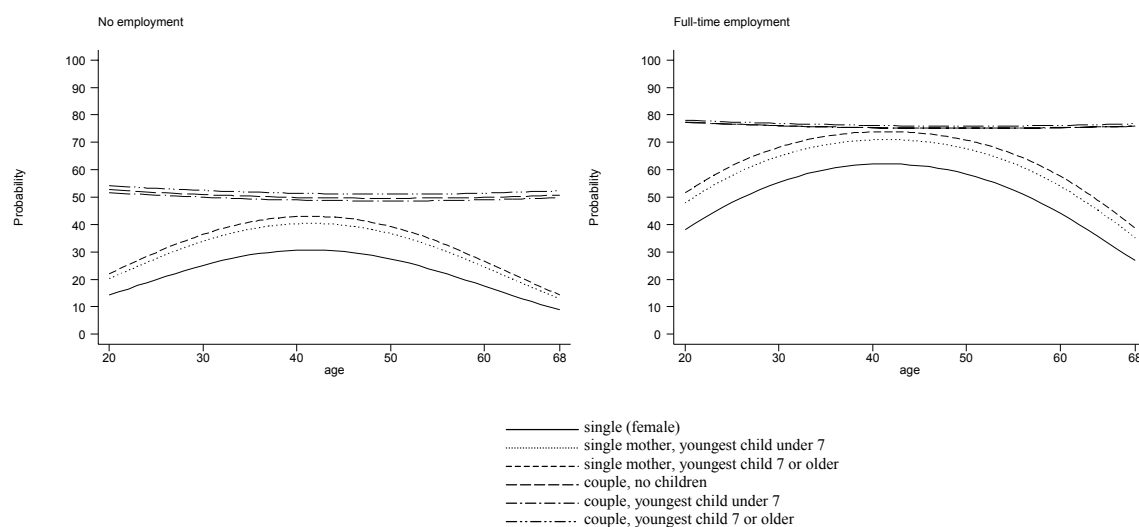
Table 6: The Distribution of Transfers by Household Type. OECD Scale

| | Number | Average | Standard Deviation | 25 th Quantile | Median | 75 th Quantile |
|-----------------------------------|--------|---------|-----------------------|------------------------------|--------|------------------------------|
| <i>Level of transfers in 1996</i> | | | | | | |
| Single | 6 362 | 13 900 | 18 600 | 0 | 5 300 | 21 600 |
| Single parent, pre-school child | 668 | 33 200 | 15 200 | 20 400 | 30 500 | 46 700 |
| Single parent, schoolage children | 992 | 31 200 | 17 900 | 16 400 | 30 000 | 46 300 |
| Couple | 1 689 | 18 400 | 19 700 | 0 | 15 200 | 31 000 |
| Couple, pre-school child | 626 | 27 700 | 17 200 | 15 000 | 21 600 | 41 200 |
| Couple, schoolage children | 714 | 26 200 | 21 000 | 8 200 | 18 400 | 48 200 |

Therefore, in order to make our analysis more realistic for the purpose of analyzing various effects and comparing household types, it is useful to make some adjustment for this fact. In Figure 2 and Table 7 we make use of the appropriate average for each respective household type in calculating the probabilities for the various groups.

¹¹ The amount is in terms of equivalent income, i.e. a NOK 1000 increase in equivalent income, not in actual monetary terms.

Figure 2: The Probability of Exiting Poverty with Transfers in 1997*



* Head of the household assumed to be Norwegian with high school education. Level of transfers set equal for the average for the relevant household type. Change in transfers set equal to zero.

** Note that, although the figure presents an age pattern up to age 68 for the various household types, few observations, if any, would be expected for households with pre-school children headed by an older person.

The first striking result of that change in our interpretative perspective is a sort of ‘redistribution effect’ with regards to the probability of exiting poverty for households with children: those probabilities move much closer to each other when no change in employment status occurs and when full-time employment is acquired. Although the probabilities for single mother households are not quite raised up to the level for households with two adults, it is certainly much closer than the analysis in the previous section would have suggested, especially for the age range of 30-50. In addition, there is now virtually no difference in households with two adults, regardless of whether or not there are children in the household. Single households with no children receive on average very little aid in the form of transfers from the government (see Table 6) and our modified analysis now suggests that this characteristic of the transfer system leaves such households with a far lower probability of exiting poverty than other household types. At least in the case of families headed by a person in the age range 30-50, therefore, it would seem that the current system of transfers does contribute to evening out some of the differences between the family types with respect to the chances of exiting poverty both with and without changes in employment¹².

¹² Results with the square-root scale offer a slightly different picture, but this is largely attributable to the fact that the poverty line as defined with the square-root scale lies slightly above the level of the Norwegian minimum pension for households. For a discussion of this aspect of poverty analysis with the square-root scale, see Galloway (2002).

Table 7: Probability of Exiting Poverty in 1997 According to Employment Status for Modified Reference Households.[#] OECD Scale.

| Household type: | No change in employment | Member of household acquires employment: | | |
|--|-------------------------------|---|-----------------------|-----------|
| | | Full-time | Extended part-time | Part-time |
| Single female | 30,6 | 62,1 | (39,2) | (31,0) |
| Single mother, youngest child under 7 | 40,3 | 70,9 | (54,8) | (33,6) |
| Single mother, youngest child 7 or older | 43,0 | 73,9 | (48,9) | (44,8) |
| Couple | 49,9 | 75,4 | 61,2 | (48,7) |
| Couple, youngest child under 7 | 49,0 | 75,3 | 74,4 | 33,5 |
| Couple, youngest child 7 or older | 51,5 | 76,1 | 55,8 | 60,2 |

Probabilities based on coefficients that are not statistically significant from zero are listed in parantheses.

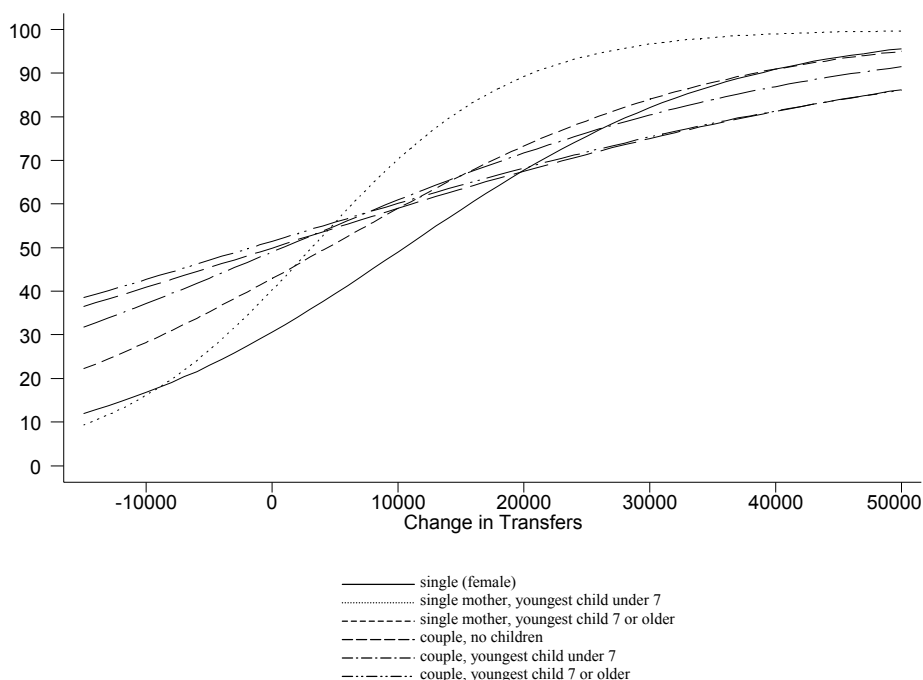
[#] Head of household assumed to be Norwegian with high school education, age 40. Level of transfers set equal to the average for the household type. All other variables set equal to zero and held constant unless otherwise noted.

Sensitivity to Changes in Transfers

The effect of a change in the level of transfers for a household with no change in employment status is presented in Figure 3. The probabilities of exiting poverty are generally more sensitive to changes in transfers for households with just one adult than for households with two adults. The greatest sensitivity to changes in transfers is manifested for single mothers with pre-school children and that pattern is statistically different from the pattern for the rest of the households headed by a single adult. Couples with pre-school children also stand out somewhat from the other households with two adults¹³. Single mother households with pre-school children therefore seem more dependent on transfers in the sense that fluctuations in that variable impact the most on that group: transfers increased by a relatively small amount are often enough to push a large percentage of such households over the poverty line.

¹³ That difference between couples with pre-school children and other households with two adults is significant at the 90% level only.

**Figure 3: Probability of Exiting Poverty in 1997
Based on a Change in Transfers[#]**



[#] For reference households in which no member is employed in 1997 and the head is assumed to be Norwegian with high school education, age 40. Starting level of transfers (transfers in 1996) set equal to the average for the household type.

If we compare the effect of an increase in transfers with that of acquiring employment, then we can see, for example, that households with two adults and pre-school children which experienced a rise in transfers of approximately NOK 24,000 and households with two adults and schoolage children which received an increase in transfers of NOK 31,000¹⁴ had roughly the same probability of exiting poverty as the corresponding households in which a household member obtained full-time employment (around 0.75). Single mothers with pre-school children were able to raise their probability of escaping poverty up to approximately the same level as with full-time employment (around 0.71) if they received an increase of just NOK 10,000 in transfers¹⁵. In other words, single mothers with pre-school children seemed to require a much smaller increase in transfers than couples with children in order to raise their probability of exiting poverty up to the same level as with full-time employment.

¹⁴ These amounts are expressed in terms of equivalent income. In actual terms it would, for example, amount to an increase of NOK 68,800 and NOK 83,700 in transfers for a household with two adults and two pre-school children and two adults and two schoolage children, respectively.

¹⁵ This corresponds to an actual increase of approximately NOK 20,000 for a single mother with two children.

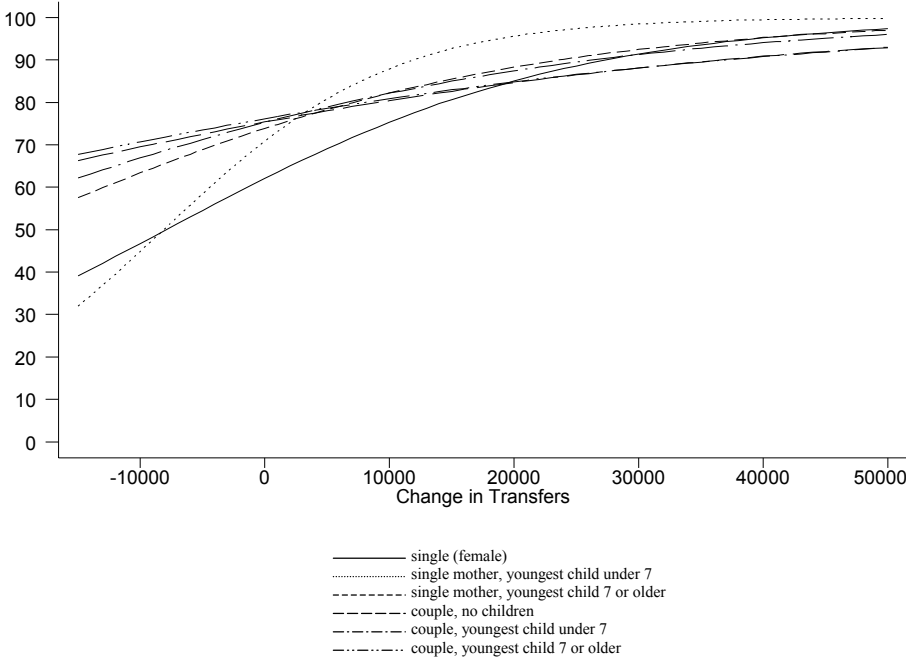
As previously mentioned, we failed to find a significant effect from acquiring part-time employment for most of the household types and even found a significantly *negative* effect for acquiring part-time employment for couples with pre-school children. Combining this with the fact that there is a significantly positive relationship between changes in transfers and the probability of exiting poverty suggests that some disincentives, in particular with respect to part-time work as an effective means of exiting poverty, may exist. The possibility of such disincentives seems particularly strong for single mothers with pre-school children. A number of factors may account for this. In particular, relatively high marginal tax rates on even low income from wages may in general reduce the incentive to take on part-time employment or limit the extent to which such work can truly lead to a substantial increase in the actual level of income. In addition, the difference in the effect of part-time employment and transfers is particularly striking for households with young children. The childcare considerations of such households add an extra cost to part-time employment, one that is not easily offset by income from such work alone. We do not take into account such childcare expenses explicitly in our definition of poverty here, but it is quite easy to imagine that the households do so themselves. Finally, acquiring labor income from part-time employment may result in a loss of certain types of transfers.

As a result, pursuing an increase in transfers rather than ‘costly’ part-time employment may actually represent the more effective means of raising the chances of exiting poverty for households such as single mothers with pre-school children, something the household themselves may recognize. In other words, it might be a *de facto* practice among the single mother households we are observing; most poor single mothers with pre-school children recognize that part-time employment would not be worth their while and, hence, do not have such employment. Those observations we do have for part-time employment among single mothers most likely represent cases of odd jobs which the mother can reconcile with the above-mentioned childcare considerations and costs for a short period. All in all, regardless of whether we are observing an effect directly or by means of such underlying forces, our results do lend support to the idea that certain disincentives are in place.

The flexibility of our model also allows us to investigate the effect of simultaneous changes in employment and transfers. Finding employment and the associated increase in income may result in a decrease in certain types of means-tested transfers, but it is also conceivable that employed households gain access to certain increases in transfers from the social insurance system. Figure 4 illustrates the effect of a change in transfers when full-time employment was obtained. A change in transfers, negative or positive, impacts little on the

probability of exiting poverty when full-time employment has been obtained for most of the household types, but, once again, single mothers with young children stand out from the rest in this regard. That means that the elimination of certain types of (means-tested) transfers generally does not have a large negative impact on most types of households that obtain employment; nor does increasing transfers to poor households that obtain employment greatly improve their (already high) chances of exiting poverty. However, just a small rise in transfers to single mothers with pre-school children does greatly improve their probability of exiting poverty even when employment is obtained, but, by the same token, a small decrease in transfers greatly lowers their exit probability. This reinforces the above-mentioned suggestion that certain disincentives with respect to work may exist for single mothers with pre-school children, especially if full-time employment results in the loss of certain types of transfers to these households.

Figure 4: Probability of Exiting Poverty in 1997 with Full-Time Employment and a Change in Transfers[#]



[#] For reference households in which a member of the household obtains full-time employment in 1997 and the head is assumed to be Norwegian with high school education, age 40. Starting level of transfers (transfers in 1996) set equal to the average for the household type.

5. Discussion

The results presented here lend support to the statement that acquiring full-time employment has a very large effect on the probability of exiting poverty for poor households in Norway. Depending on the exact method of comparison, full-time employment leads to a 150-200% larger probability of exiting poverty compared to households in which no form of employment is obtained. Extended part-time employment does seem a viable alternative for increasing the probability of exiting poverty for households headed by two adults, but no such effect can be established for single parents. Part-time employment cannot be said to have any effect on the chances of exiting poverty.

The existing system of transfers does even out many of the differences in the probability of exiting poverty for different types of households: in particular, the high level of transfers received by single mother households helps to raise their chances of exiting poverty almost up to the level of couples with children, with or without a change in employment status. Single households with no children receive very little aid in the form of transfers and, as a result, lag far behind the other household types in the chances of exiting poverty when transfers are taken into consideration. There is, unsurprisingly, a positive relationship between changes in transfers and the probability of exiting poverty, and single mother households are most sensitive to such changes, both when they acquire full-time employment and when they remain non-employed. These results combined with the seemingly lack of effect from part-time employment is compatible with the suggestion that the tax and transfer system may entail some disincentives away from work and towards increased transfers for poor single mother households with small children trying to exit poverty. A similar effect cannot be established for the other types of households: they appear much more robust to such changes in transfers. Due to the nature and shortcomings of a model such as ours, however, definitive conclusions about such behavioral issues obviously cannot be made. At best, the results can be interpreted as compatible with the possibility of such incentive features; whether those incentives are actually in place and the mechanisms by which they work would require a different approach and further analysis.

One of the topics pervasive in many of the results described above is that of unobserved heterogeneity or non-random selection. In fact, we introduced the need for a regression model such as ours by referring to the possibility of various sources of heterogeneity which may account for many of the differences exhibited from the perspective of typical head count percentages and broad statistics. Our model first isolates the very special cases of households that were classified both as poor and without any form of employment for

the previous two years and then proceeds to include a large variety of variables that do go a very long way towards eliminating many potential sources of heterogeneity. However, as much as our approach is an improvement over a simple survey of head count percentages, considerations with respect to the issues of heterogeneity and selectivity do still recommend caution in interpretation.

Our estimates are essentially based on different groups of households – those that find employment or experience some other type of change and those who do not. It is not possible to assume that the effect of employment applies without restriction to those households in which no employment was obtained. The households remaining without work may not have had any real job opportunities while the households that found employment obviously did. This could be a form of self-selection if the households that found employment were the only ones that could and did actively pursue it or it might be due to a non-random selection based on the characteristics of the individuals in question and alternatives available to different groups in the job market. An analogous argument applies to the possibility of obtaining transfers from the government. Regardless of the form it actually takes, the possibility of such selectivity in our data can make it difficult to conclude definitively that acquiring full-time employment or increasing transfers would have the same effect on all the households in our sample. However, as we mentioned in the introduction to this article, Norway represents one of the most successful European countries with respect to combining a generous social welfare system with low unemployment and well-functioning labor markets. This helps somewhat to dull the edges of the sharpest form of such difficulties. In addition, the period we investigate is one in which the Norwegian economy was experiencing an economic upturn with decreasing unemployment and rising wages; in other words, a time in which opportunities on the labor market were very good. Rationing of jobs was hardly a characteristic of the period we investigate.

By the same token, the general situation in the economy, which, on the one hand, helps us to disregard certain shortcomings more prominent in countries with larger labor market difficulties, does, on the other hand, somewhat limit the scope of applicability for our results. The effect we observe may not apply to other economic circumstances, such as rising unemployment or low economic growth. The households we investigate – the ‘tough cases’ that have experienced a lack of employment and were poor for at least two years – might just be the very last to experience the benefits of an economic upturn and the first to feel the effects of an economic downturn. In other words, the effect we register may not be representative over time and economic cycles if it is largely the result of the upturn exhibited

in the Norwegian economy from the mid- to late-1990s. The possibility of in the future using longer time series to further investigate our questions will help us to uncover not only the extent to which general economic conditions might affect our results, but will also provide the opportunity to establish whether or not the results we find here hold over time for the actual households in question, in other words, whether the effect we observe provides these households with more than just temporary relief from poverty.

References:

- Aaberge, Rolf, Arne S. Andersen and Tom Wennemo, (1999): Extent, Level and Distribution of Low Income in Norway 1979-1995 in B. Gustafsson and P.J. Pedersen (eds.), *Poverty and Low Income in the Nordic Countries*, Ashgate Publishing, 131-168.
- Galloway, Taryn Ann, (2002): En studie av fattigdom basert på registerdata, Rapport 1/2002, Ragnar Frisch Centre for Economic Research.
- Haveman, Robert and Lawrence Buron, (1993): Escaping Poverty through Work: The Problem of Low Earnings Capacity in the United States, 1973-88, *Review of Income and Wealth* 39(2), 141-157.
- Jenkins, Stephen P. , (2000): Modelling Household Income Dynamics, *Journal of Population Economics* 13, 529-567.
- Kjeldstad, Randi and Marit Rønsen, (2002): Enslige foreldre på arbeidsmarkedet 1980-1999, *Statistical Analyses* 49, Statistics Norway.
- Lund, Kjetil and Rolf Aaberge, (1999): Effekten av val av ekvivalensskala på tallfesting av omfang, fordeling og utviklingen av fattigdom i Norge 1982-1995 in Eva Birkeland (ed.), *Forskjeller i Levekår, Heft 1: Inntekt*, Notater 99/32, Statistics Norway, 44-88.
- Oxley, Howard, Thai Thanh Dang and Pablo Antonín (2000): Poverty Dynamics in Six OECD Countries, *OECD Economic Studies*, No. 30.
- Van Leeuwen, Jolanda and Jeroen Pannekoek, (2002): To Work Oneself Out of Poverty: The Dutch Experience 1989-1996, *Review of Income and Wealth* 48(1), 127-140.

Appendix

Table A.1: Poverty Line Based on Two Equivalence Scales

| | Square-Root Scale | | | OECD Scale | | |
|---------------|-------------------|---------|---------|------------|---------|---------|
| | 1995 | 1996 | 1997 | 1995 | 1996 | 1997 |
| <i>Median</i> | 155 500 | 161 100 | 165 000 | 118 600 | 123 000 | 126 200 |
| 50% of median | 77 750 | 80 550 | 82 500 | 59 300 | 61 500 | 63 100 |
| 60% of median | 93 300 | 96 660 | 99 000 | 71 160 | 73 800 | 75 720 |
| 70% of median | 108 850 | 112 770 | 115 500 | 83 020 | 86 100 | 88 340 |

In 1996 Norwegian kroner.

Table A.2: Poverty in the General Population. Percentage of individuals classified as poor.

| Poverty Line at | Square-Root Scale | | | OECD Scale | | |
|-----------------|-------------------|------|------|------------|------|------|
| | 1995 | 1996 | 1997 | 1995 | 1996 | 1997 |
| 50% of median | 7,3 | 6,8 | 6,5 | 3,9 | 3,5 | 3,4 |
| 60% of median | 13,5 | 13,0 | 12,8 | 9,5 | 9,1 | 8,9 |
| 70% of median | 21,2 | 20,6 | 20,5 | 17,8 | 17,5 | 17,3 |

Table A.3: Poverty Status Relative to Employment Status in Household in 1997. Number of households.

| <i>Employment status in 1997:</i> | Square-Root Scale | | | OECD Scale | | |
|-------------------------------------|-------------------|----------|--------|------------|----------|--------|
| | Poor | Not poor | Total | Poor | Not poor | Total |
| No working member in household | 13 663 | 2 854 | 16 517 | 6 095 | 1 389 | 7 484 |
| Household member finds : | | | | | | |
| Full-time work | 683 | 1 017 | 1 700 | 473 | 831 | 1 304 |
| Extended part-time work | 154 | 177 | 331 | 115 | 133 | 218 |
| Part-time work | 535 | 395 | 930 | 409 | 247 | 656 |
| Labor income, no job info available | 936 | 1 050 | 1 986 | 673 | 716 | 1 389 |
| Total | 15 971 | 5 493 | 21 464 | 7 765 | 3 286 | 11 051 |

**Table A.4: Regressions Results for the Probability of Exiting Poverty in 1997.
OECD Scale.**

| | Single adult | | Couple | |
|--|--------------|----------------|----------|----------------|
| | Estimate | Standard Error | Estimate | Standard Error |
| Intercept | -4,9151 | 0,3764 | -0,2671 | 0,601 |
| Characteristics of head of household: | | | | |
| Female | -0,1696 | 0,0449 | -- | -- |
| Head's age | 0,1765 | 0,0166 | -0,0138 | 0,0267 |
| Head's age squared | -0,00213 | 0,000198 | 0,000139 | 0,000301 |
| Education: | | | | |
| Middle school or less | 0,2853 | 0,0793 | 0,3278 | 0,1129 |
| Some education beyond high school | 0,158 | 0,1667 | -0,1273 | 0,2401 |
| Higher education – first degree | 0,4745 | 0,1759 | -0,2763 | 0,2785 |
| Higher education – second degree or higher | -0,1212 | 0,2493 | 0,2958 | 0,2936 |
| In education | 0,0745 | 0,1262 | 0,0882 | 0,1371 |
| Not available | -0,9893 | 0,1036 | -0,4903 | 0,1527 |
| Ethnic origin: | | | | |
| Western | -0,2743 | 0,1774 | -0,3466 | 0,2171 |
| Eastern European | 0,5085 | 0,1808 | 0,4557 | 0,161 |
| Asian | 0,00817 | 0,1328 | -0,2358 | 0,1276 |
| African | 0,37 | 0,165 | 0,0779 | 0,1935 |
| South or Central American | -0,6278 | 0,2839 | 0,1244 | 0,3685 |
| Type of household: | | | | |
| Youngest child under 7 | -0,4284 | 0,1543 | -0,3378 | 0,1139 |
| Youngest child 7 or older | -0,2301 | 0,1119 | -0,1904 | 0,1119 |
| Change in household: | | | | |
| Divorce/separation/loss of partner | -0,1046 | 0,1605 | 0,0303 | 0,1881 |
| Children | 0,3083 | 0,2977 | 0,401 | 0,4047 |
| Children leave household | 0,1498 | 0,2475 | 0,4733 | 0,3328 |
| Employment | | | | |
| Full-time job | 1,3111 | 0,1361 | 1,1205 | 0,1147 |
| Extended part-time job | 0,3809 | 0,2249 | 0,4565 | 0,2153 |
| Part-time job | 0,0187 | 0,161 | -0,0498 | 0,1426 |
| Labor income, job info not available | 0,382 | 0,1614 | 0,7843 | 0,1249 |
| Interaction term, household type and job type | | | | |
| Youngest child under 7 | | | | |
| Full-time job | -0,027 | 0,2384 | 0,034 | 0,1633 |
| Extended part-time job | 0,2051 | 0,3995 | 0,6487 | 0,2864 |
| Part-time job | -0,3059 | 0,2865 | -0,5973 | 0,2164 |
| Labor income, job info not available | 0,1272 | 0,2914 | -0,3349 | 0,1912 |
| Youngest child 7 or older | | | | |
| Full-time job | 0,0111 | 0,1795 | -0,0188 | 0,1595 |
| Extended part-time job | -0,1427 | 0,2797 | -0,284 | 0,3103 |
| Part-time job | 0,0575 | 0,1987 | 0,4026 | 0,1887 |
| Labor income, job info not available | -0,00734 | 0,2022 | -0,1808 | 0,1775 |
| Level of transfers in 1996 (in NOK 100) | 0,00442 | 0,00021 | 0,00323 | 0,000324 |
| Change in transfer 1996 to 1997 (in NOK 100) | 0,0078 | 0,000471 | 0,00367 | 0,000495 |
| Interaction term, change in transfers and employment | | | | |
| Full-time job | -0,00157 | 0,000486 | -0,00072 | 0,000709 |
| Extended part-time job | -0,00136 | 0,000846 | -0,00211 | 0,00118 |
| Part-time job | -0,00049 | 0,000619 | -0,00094 | 0,000793 |
| Labor income, job info not available | 0,000467 | 0,000499 | -0,00094 | 0,000606 |
| Interaction term, change in transfers and household type | | | | |
| Youngest child under 7 | 0,00473 | 0,000731 | 0,00117 | 0,000637 |
| Youngest child 7 or older | -0,00133 | 0,000529 | -0,00014 | 0,000596 |

**Table A.5: Regressions Results for the Probability of Exiting Poverty in 1997.
Square Root Scale.**

| | Single adult | | Couple | |
|--|--------------|----------------|----------|----------------|
| | Estimate | Standard Error | Estimate | Standard Error |
| Intercept | -3,797 | 0,2544 | -1,6492 | 0,5592 |
| Characteristics of head of household: | | | | |
| Female | -0,0417 | 0,0286 | | |
| Head's age | 0,1165 | 0,0107 | 0,0563 | 0,0242 |
| Head's age squared | -0,00145 | 0,000119 | -0,00075 | 0,000273 |
| Education: | | | | |
| Middle school or less | 0,178 | 0,0623 | 0,3509 | 0,1117 |
| Some education beyond high school | -0,0292 | 0,14 | -0,2213 | 0,2354 |
| Higher education – first degree | 0,1475 | 0,1527 | -0,0419 | 0,2803 |
| Higher education – second degree or higher | -0,0909 | 0,2253 | 0,124 | 0,304 |
| In education | 0,0585 | 0,1064 | 0,2905 | 0,1432 |
| Not available | -0,377 | 0,0834 | -0,6569 | 0,1523 |
| Ethnic origin: | | | | |
| Western | -0,2881 | 0,152 | -0,5603 | 0,2129 |
| Eastern European | 0,5654 | 0,1534 | 0,443 | 0,1698 |
| Asian | 0,206 | 0,1169 | -0,2743 | 0,1348 |
| African | 0,3164 | 0,1484 | 0,1826 | 0,1948 |
| South or Central American | -0,5719 | 0,2416 | 0,2028 | 0,3703 |
| Type of household: | | | | |
| Youngest child under 7 | 0,2191 | 0,0793 | 0,0046 | 0,1494 |
| Youngest child 7 or older | -0,1851 | 0,0662 | -0,156 | 0,1478 |
| Change in household: | | | | |
| Divorce/separation/loss of partner | -0,1895 | 0,1426 | 0,6032 | 0,1852 |
| Children | 0,3598 | 0,2015 | -0,1802 | 0,4142 |
| Children leave household | 0,1619 | 0,2026 | 0,2683 | 0,3317 |
| Employment | | | | |
| Full-time job | 1,2573 | 0,0879 | 0,9281 | 0,1435 |
| Extended part-time job | 0,5332 | 0,1259 | 0,5291 | 0,2926 |
| Part-time job | -0,0207 | 0,0875 | 0,361 | 0,1835 |
| Labor income, job info not available | 0,6296 | 0,0924 | 0,6516 | 0,1521 |
| Interaction term, household type and job type | | | | |
| Youngest child under 7 | | | | |
| Full-time job | -0,1884 | 0,1436 | -0,0468 | 0,2126 |
| Extended part-time job | -0,1095 | 0,1977 | 1,1459 | 0,4447 |
| Part-time job | 0,1469 | 0,137 | -0,7128 | 0,282 |
| Labor income, job info not available | 0,1883 | 0,1559 | -0,5032 | 0,2338 |
| Youngest child 7 or older | | | | |
| Full-time job | 0,0285 | 0,1203 | -0,1482 | 0,2142 |
| Extended part-time job | 0,1498 | 0,1683 | -0,6263 | 0,4405 |
| Part-time job | -0,1399 | 0,116 | 0,9168 | 0,2715 |
| Labor income, job info not available | 0,0121 | 0,123 | -0,0445 | 0,228 |
| Level of transfers in 1996 (in NOK 100) | 0,00393 | 0,000123 | 0,00319 | 0,000244 |
| Change in transfer 1996 to 1997 (in NOK 100) | 0,00498 | 0,000243 | 0,00353 | 0,000452 |
| Interaction term, change in transfers and employment | | | | |
| Full-time job | -0,00198 | 0,000306 | -0,0003 | 0,000584 |
| Extended part-time job | -0,00062 | 0,000568 | -0,00118 | 0,000975 |
| Part-time job | -0,00102 | 0,000436 | -0,00078 | 0,000662 |
| Labor income, job info not available | -0,00016 | 0,000343 | -0,00068 | 0,000465 |
| Interaction term, change in transfers and household type | | | | |
| Youngest child under 7 | 0,00119 | 0,000297 | 0,000328 | 0,000575 |
| Youngest child 7 or older | -0,0002 | 0,000271 | 0,0011 | 0,0006 |

Table A.6: Probability of Exiting Poverty in 1997: Comparison of Model Predictions* and Observed Percentages for Selected Ethnic Groups. OECD Scale.

| Characteristics | Observations | Observed Percentage | Model Prediction |
|--------------------------------------|--------------|---------------------|------------------|
| <i>Norway:</i> | | | |
| No working member in household | 5 207 | 21,4 | 21,2 |
| Household member finds: | | | |
| Full-time work | 911 | 64,8 | 64,5 |
| Extended part-time work | 154 | 46,1 | 46,2 |
| Part-time work | 420 | 38,8 | 37,8 |
| Labor income, job info not available | 987 | 50,0 | 51,6 |
| <i>Africa:</i> | | | |
| No working member in household | 336 | 16,1 | 15,8 |
| Household member finds: | | | |
| Full-time work | 52 | 71,2 | 67,6 |
| Extended part-time work | 6 | -- | -- |
| Part-time work | 44 | 36,4 | 45,0 |
| Labor income, job info not available | 73 | 56,2 | 56,9 |
| <i>Eastern Europe:</i> | | | |
| No working member in household | 389 | 18,5 | 17,2 |
| Household member finds : | | | |
| Full-time work | 121 | 64,5 | 66,4 |
| Extended part-time work | 25 | 68,0 | 58,9 |
| Part-time work | 37 | 46,0 | 46,2 |
| Labor income, job info not available | 57 | 49,1 | 58,0 |
| <i>Asia:</i> | | | |
| No working member in household | 988 | 11,1 | 11,9 |
| Household member finds: | | | |
| Full-time work | 165 | 62,4 | 60,7 |
| Extended part-time work | 25 | 32,0 | 46,1 |
| Part-time work | 118 | 31,5 | 33,4 |
| Labor income, job info not available | 179 | 53,1 | 46,7 |

* The probability of escaping poverty in 1997 is calculated for each individual based on the estimated model coefficients and the average is taken over the group with the relevant characteristics.

**The number of observations in this group was too small for meaningful comparison.

Table A.7: Probability of Exiting Poverty in 1997: Comparison of Model Predictions* and Observed Percentages According to Level of Education. Square-Root Scale.

| Characteristics | Observations | Model Prediction | Observed Percentage |
|--------------------------------------|--------------|------------------|---------------------|
| Middle school or lower: | | | |
| No working member in household | 10 373 | 18,7 | 18,7 |
| Household member finds: | | | |
| Full-time work | 657 | 64,3 | 62,9 |
| Extended part-time work | 144 | 59,9 | 61,1 |
| Part-time work | 347 | 53,5 | 54,8 |
| Labor income, job info not available | 868 | 60,1 | 61,3 |
| High school: | | | |
| No working member in household | 1 807 | 18,6 | 16,9 |
| Household member finds: | | | |
| Full-time work | 410 | 61,9 | 68,1 |
| Extended part-time work | 85 | 58,6 | 63,5 |
| Part-time work | 176 | 44,4 | 39,8 |
| Labor income, job info not available | 348 | 52,2 | 54,9 |
| Higher education – first degree | | | |
| No working member in household | 247 | 13,5 | 10,5 |
| Household member finds : | | | |
| Full-time work | 87 | 58,9 | 65,5 |
| Extended part-time work | 8 | ** | ** |
| Part-time work | 17 | 32,7 | 47,1 |
| Labor income, job info not available | 37 | 57,7 | 56,8 |

* The probability of escaping poverty in 1997 is calculated for each individual based on the estimated model coefficients and the average is taken over the group with the relevant characteristics.

-- indicates that the number of observations in this group was too small for meaningful comparison.

Table A.8: Probability of Exiting Poverty in 1997: Comparison of Model Predictions* and Actual Percentages for Selected Immigrants. Square-Root Scale.

| Characteristics | Observations | Model Prediction | Observed Percentage |
|--------------------------------------|--------------|------------------|---------------------|
| <i>Norway:</i> | | | |
| No working member in household | 13 847 | 18,1 | 18,3 |
| Household member finds : | | | |
| Full-time work | 1 280 | 59,6 | 59,0 |
| Extended part-time work | 271 | 53,8 | 53,5 |
| Part-time work | 720 | 42,5 | 42,5 |
| Labor income, job info not available | 1 531 | 53,3 | 52,9 |
| <i>Africa:</i> | | | |
| No working member in household | 402 | 14,0 | 12,7 |
| Household member finds: | | | |
| Full-time work | 68 | 56,6 | 64,7 |
| Extended part-time work | 6 | ** | ** |
| Part-time work | 44 | 47,2 | 47,7 |
| Labor income, job info not available | 94 | 53,9 | 51,2 |
| <i>Eastern Europe:</i> | | | |
| No working member in household | 477 | 16,9 | 16,1 |
| Household member finds : | | | |
| Full-time work | 120 | 68,3 | 74,2 |
| Extended part-time work | 25 | 60,5 | 60,0 |
| Part-time work | 32 | 54,2 | 53,1 |
| Labor income, job info not available | 66 | 59,2 | 54,6 |
| <i>Asia:</i> | | | |
| No working member in household | 1 055 | 13,0 | 12,4 |
| Household member finds: | | | |
| Full-time work | 169 | 61,6 | 62,7 |
| Extended part-time work | 23 | 50,3 | 52,2 |
| Part-time work | 93 | 39,7 | 41,9 |
| Labor income, job info not available | 191 | 48,3 | 49,2 |

* The probability of escaping poverty in 1997 is calculated for each individual based on the estimated model coefficients and the average is taken over the group with the relevant characteristics.

Table A.9: Probability of Exiting Poverty in 1997 According to Employment Status for Reference Households. # Square-Root Scale.

| Household type: | Member of household acquires employment: | | | |
|--|--|-----------|--------------------|-----------|
| | No change | Full-time | Extended part-time | Part-time |
| Single female | 18,3 | 44,0 | 27,6 | (18,0)* |
| Single mother, youngest child under 7 | 21,8 | 44,8 | 29,8 | 24,0 |
| Single mother, youngest child 7 or older | 15,7 | 40,2 | 26,9 | 13,7 |
| Couple | 35,5 | 58,2 | 48,3 | 44,1 |
| Couple, youngest child under 7 | 35,6 | 57,2 | 74,7 | 28,0 |
| Couple, youngest child 7 or older | 32,0 | 50,7 | (29,9) | 62,8 |

*Probabilities based on coefficients that are not statistically significant from zero are listed in parantheses.

Head of household assumed to be Norwegian with high school education, age 40. All other variables set equal to zero and held constand unless noted.

Table A.10: The Distribution of Transfers by Household Type. Square-Root Scale.

| | Number | Average | Standard Deviation | 25 th Percentile | Median | 75 th Percentile |
|-----------------------------------|--------|---------|--------------------|-----------------------------|--------|-----------------------------|
| <i>Level of transfers in 1996</i> | | | | | | |
| Single | 14 167 | 38 700 | 32 300 | 0 | 42 300 | 66 000 |
| Single parent, pre-school child | 1 939 | 61 100 | 21 200 | 46 800 | 72 100 | 76 800 |
| Single parent, schoolage children | 2 141 | 53 700 | 24 300 | 33 600 | 63 200 | 74 100 |
| Couple | 2 352 | 28 500 | 29 600 | 0 | 17 800 | 58 000 |
| Couple, pre-school child | 388 | 32 100 | 20 900 | 16 800 | 26 500 | 43 500 |
| Couple, schoolage children | 477 | 29 400 | 27 800 | 7 300 | 16 800 | 57 600 |