

JOB MOBILITY AND WAGE GROWTH

– An Application of Microeconometrics

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1. Introduction

The growing availability of panel data and recent econometric advances in microeconomic methodology have made it possible to shed new light on a number of classical topics in labor economics, for example the causes and consequences of job mobility and the relationships between unionism and wages. This paper reports on a study of labor market mobility, with focus on male Swedish workers.¹

The study has two interrelated objectives. The first is to explore the role of expected wage gains for mobility decisions. The second aim is to investigate the effects of mobility on subsequent earnings. Do workers actually gain by moving or had they done better by not moving? This information, in turn, will illuminate the relationships between life cycle earnings profiles and life cycle patterns of job mobility.

The study extends beyond the standard, "naive" approach in mobility studies, where earnings differentials between stayers and movers are captured by a dummy variable in an earnings function. A tacit assumption in this traditional approach is that the computed wage differential (if positive) measures the stayers' gain from moving, had they moved. However, the movers and stayers are not randomly selected groups but rather *self-selected*, presumably on the basis of perceived benefits associated with the alternatives. The earnings of movers are, therefore, not necessarily attributable to stayers, had *they* moved; nor are the stayers' earnings necessarily attributable to those who actually moved, had they not moved.

Our analysis takes the interdependence between wage growth and mobility into account; wage growth rates are affected by mobility and the mobility decision responds to alternative prospective wage growth rates. The framework we use results in a model with binary and limited dependent variables.²

¹ It draws on Holmlund (1983).

² Methodologically, our study is similar to the paper by Rosen and Willis (1979) on education and self-selection and to Lee's analysis (1978) of unionism and wage rates. A recent application of the methodology to analyze migration is provided by Robinson and Tomes (1982). See also Heckman (1979) for a general discussion of self-selection problems in econometric models.

2. The Framework

We assume that the worker's mobility decision is based on a comparison between two prospective earnings streams, associated with job mobility and job staying, respectively. The worker has anticipations about wage growth and moves if discounted life time earnings, net of job transfer costs, are improved.

The model involves specification of two wage growth equations, one for movers and one for stayers. (In other words, we allow mobility status to interact with all explanatory variables of the wage growth equation.) This, however, leads to econometric problems, since wage growth for movers (stayers) is observed only for those who choose to move (stay). Estimates will have to be based on *censored* samples, a design that is likely to produce inconsistent estimates.

Procedures to deal with self-selection and censored data are available. We have applied these methods and been able to consistently estimate the wage growth equations. Given those estimated equations, we can impute hypothetical wage growth rates to each individual in the sample. The alternative wage paths represent the worker's prospective income streams, related to moving and staying, respectively. They will be used as major right-hand side variables in the equation that explains mobility decisions.

3. Variables and Data

The data analyzed are from the Swedish Level of Living Surveys of 1968 and 1974. In particular, we will explore the determinants of mobility and wage growth for male workers between 1968 and 1974. Mobility is defined as change of employer.

A summary description of the data is given in Table 1. It can be observed that movers generally tend to be younger, less frequently married and with shorter length of tenure. The initial wage level is lower for movers, whereas their rate of wage growth is higher than the average. Movers receive 5.3 percent real wage increase (before taxes) whereas stayers get 2.8 percent per year.

4. Empirical Results

As noted above movers and stayers are likely to be self-selected on the basis of perceived benefits associated with the different options. Our analysis can illuminate the nature of this self-selection. We find that those who preferred to stay did better as stayers than what measurably similar movers would have done, had *they* decided not to move. This is consistent with a comparative advantage story; those actually observed as stayers would be exactly those

Table 1. *Sample characteristics*

	All workers	Job movers	Job stayers
Age	37	32	40
Recently moved to current locality (= 1 if the person moved in 1967 or 1968, zero otherwise)	0.09	0.14	0.06
Δ Schooling	0.8	1.1	0.7
Δ Experience	5.2	4.9	5.3
Marital status (= 1 if married, zero otherwise)	0.73	0.55	0.81
Δ Marital status	0.10	0.22	0.05
Tenure	9.8	5.2	12.0
Local unemployment rate	2.1	2.1	2.1
\ln initial wage	7.066	6.959	7.116
Real wage increase per year, percent	3.6	5.3	2.8
Sample size	1 047	330	717

Note: The figures refer to 1968 and to changes between 1968 and 1974. The wage rate is earnings per hour in Swedish öre. The local unemployment rate is the average for 1970-73 of unemployment rates in regions of co-operating municipalities (A-regions). Age, Schooling, Experience and Tenure are measured in years.

Table 2. *Actual and hypothetical real wage growth rates 1968-74.*
Percent per year

	Actual wage growth	Wage growth, moving	Wage growth, staying
All workers	3.6	5.5	2.3
Age 16-29	6.2	8.2	3.8
Age 30-49	2.5	4.5	1.7
Age 50-	1.9	3.4	1.4
Movers	5.3		3.0
Stayers	2.8	4.9	

who are likely to benefit from being stayers. The evidence on "selection-bias" is, however, inconclusive in the case of movers.

We may also ask: Do movers gain by moving? Or had they done better by not moving? Analogous questions are of course relevant for stayers. The measurement of gains from mobility requires that movers are compared to movers (and stayers to stayers). The computations are straightforward. The mean characteristics of movers are applied to the stayers wage function, hence giving a hypothetical wage change for movers, had they stayed. Analogously, the typical characteristics of the stayers are confronted with the movers wage equation, resulting in a calculated wage increase for stayers, had they moved. The results are shown in Table 2.

It is obvious that *movers do gain by moving*; the yearly wage growth rate is increased by somewhat above 2 percentage points for job movers, compared to a situation where they had stayed. Movers appear to gain by moving, but do stayers also gain by staying? The answer is no; stayers forego wage gains around 2 percentage points by refusing to move, presumably because of mobility costs.

The worker's mobility decision is by assumption based on a comparison of two alternative earnings streams, associated with job mobility and job staying, respectively. The estimated wage growth equations allow us to impute those alternative wage paths to each individual. Hence, we obtain the estimable "structural" decision equation.

Of special interest here is to see whether workers respond to their potential wage gains. The answer, according to our estimates, is affirmative; job mobility decisions are clearly affected by prospective wage gains.

5. Conclusions

We have reported on an analysis of determinants and consequences of individual mobility behavior in the Swedish labor market. Since workers are likely to move in response to their potential wage gains, there is a two-way causality between mobility and wage growth. The econometric procedures utilized take this interdependence into account.

The results of the empirical analyses indicate that actual job movers obtain around 2 percentage points higher real wage growth compared to a situation where they had decided not to move. It is also interesting to see that potential mobility gains are decreasing over the life cycle, thus providing one piece of an economic interpretation of observed life cycle patterns of mobility and earnings. The traditional human capital explanation of life cycle earnings profiles appear to need an extension to account for mobility behavior over the life cycle (and wage gains associated with this mobility).

Population heterogeneity is likely to interfere with unbiased estimates of the returns to individual job changes. We find evidence of positive self

selection for stayers; a random group of workers will experience lower wage growth rates as stayers than what actual stayers obtained. The evidence on self-selection is less conclusive for movers.

An interesting consequence of the adopted procedure is the possibility of estimating structural decision equations, where hypothetical wage growth rates enter as arguments. We find that workers respond to their "opportunity wages" in the expected direction.

A number of issues have been left out of focus in the present study. For example, the treatment of taxes has been illustrative rather than thorough. The interrelationships between mobility and labor supply decisions have also been ignored; throughout we have implicitly assumed hours worked to be fixed. In future research, it would be of interest to deal with those decisions in a unified theoretical and econometric framework. Finally, it would be desirable to view mobility decisions in a *household* perspective; the presence of various family ties are clearly of importance for inter-local job changes. This, however, requires panel data with information on both spouses (and possibly other family members as well). Such data sources are, unfortunately, still not available in Sweden. (See Klevmarken's article above.)

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