An Evaluation of the Adult Education Initiative Relative Labor Market Training

by

Anders Stenberg

Department of Economics, Umeå University
SE 901 87 Umeå, Sweden

1. Introduction

The Adult Education Initiative (AEI) in Sweden was introduced in the autumn of 1997 and continued until 2002. It offered primarily unemployed individuals a year of full time studies of adult education at compulsory or upper secondary levels.

The main intention with this expansion of adult education was to raise the educational levels of the groups of adults in most need of education. This would enhance economic growth and reduce unemployment. By minimizing the obstacles for those unaccustomed to theoretical studies, the idea was to improve their prospects on the labor market, build up their confidence and encourage them to further studies. In Sweden, there are many individuals with a two year upper secondary diploma as their highest educational attainment. In general these individuals do not fulfill the criteria to apply for studies at university level. Since 1995, all the upper secondary school diplomas are based on three years of studies. The construction of the AEI made it very well suited for the group with a prior two year upper secondary education.

A subordinate objective of the AEI was that the increase of the adult education would be combined with a development and a renewal of the methodology and pedagogy. The thought was that experiences would be exchanged between the educational organizers to improve the overall quality in adult education.

Various forms of financial support during adult education already existed but a new form of allowance was introduced, a special grant for education and training, UBS, which was equal to the unemployment insurance (UI) of the individual. Eligibility to apply for UBS demanded that the individual was 25-55 years old, studied at compulsory or upper secondary level and was entitled to the UI. A limited number of employed individuals could also apply for UBS, provided that their employer would hire a long term unemployed in their place.

The government's decision from 1996 was that the AEI would amount to an expansion of 100,000 seats in the adult education, mostly within the existing municipal adult education institute *komvux*. Ten per cent of the seats

would be distributed to the folk high schools which, besides traditional subjects, offer a variety of classes in art, music and drama. The municipalities were financially supported based, *inter alia*, on their population, the educational level in the municipality and the numbers enrolled in adult education.

Since the 1970's, each municipality has had the responsibility to offer education for adults at compulsory or upper secondary level. Komvux has steadily grown in proportions and at the start of the 1990's, around 130,000 individuals were enrolled in komvux. The existence of komvux, as an already established institution for adult education, was a key for the AEI to take place.

Figure 1 shows how the number of individuals enrolled in komvux developed during the period 1993 – 2001. The numbers include both full-time and part-time students. When the AEI was introduced in 1997, the increase was substantial. The figures can be compared with the yearly numbers in regular upper secondary school, which were approximately 300,000 during this period.

Figure 1: Number of individuals enrolled in komvux during 1993 – 2001.
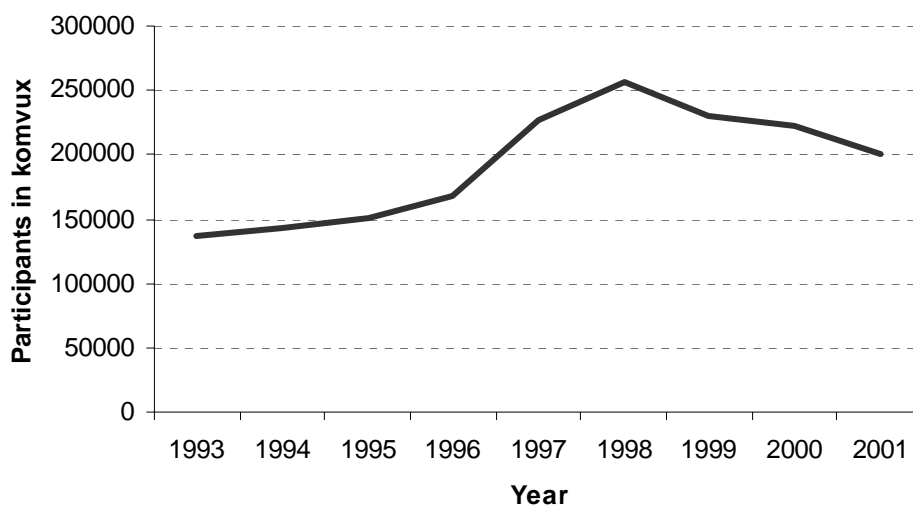
A couple of years after the introduction of the AEI the number of partici-
pants started to decrease. This can also be seen in the number of individuals
with the special grant for education and training (of which some went to
folk high schools). In Figure 2, these numbers are presented over the se-
mesters, starting from the autumn of 1997. Those that received the UBS
coming from employment and unemployment are separated. The numbers
remained high in 1998-99 before continually decreasing until the program
ended in 2002. One reason for the high numbers to persist during the first
four semesters was that those enrolled in the first year were offered UBS for
another schooling year, i.e. 1998-99. This was an offer which was accepted
by 47 per cent of the participants. The prolongation of UBS was not re-
peated in later years. A possible reason for the decrease was a steady im-
provement of the labor market situation. In 2002, the termination of the AEI
was followed by a decision of a permanent expansion of 50,000 seats in the
adult education. The UBS was replaced by a new form of study allowance,
the recruitment grant, with partly different conditions.

Figure 2: The number of individuals with the special grant for education
and training. Spring (s) and autumn (a) semesters.
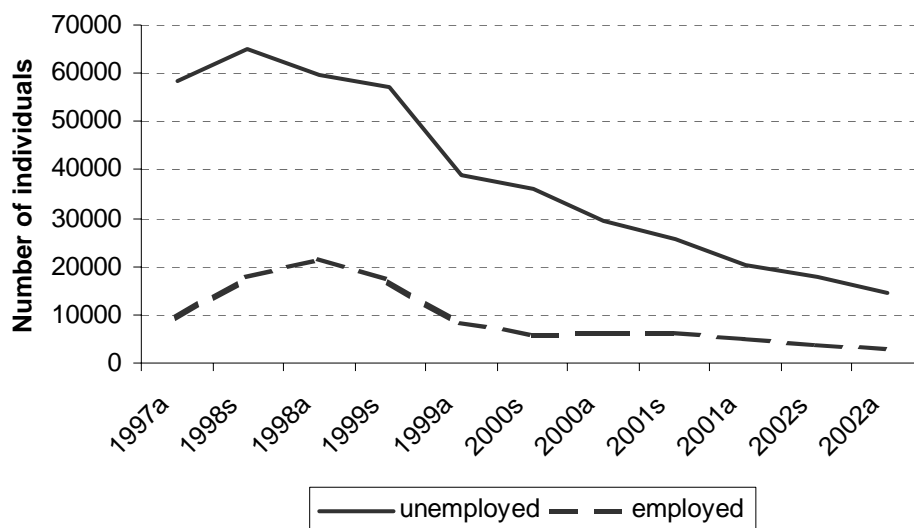
The constitution of the AEI, a large scale labor market program which offered the unemployed the opportunity of formal education, makes it differ from traditional labor market programs with more work related training. If successful, the AEI would become interesting for policy makers in other countries. The rather straightforward set up makes it easy to copy if there is an existing well functioning body for adult education.

The comparative nature of this thesis

This thesis consists of three papers that evaluate the effects of the AEI on unemployment and wage earnings. Throughout, the definition of a participant in the AEI is that the individual was enrolled in komvux, had registered as unemployed during the year of enrollment and received the special grant UBS. The outcome variables used are in Paper [1] the incidence to unemployment, and the duration in unemployment, in Paper [2] the annual wage earnings in 1999, and in Paper [3] the annual wage earnings in 1999 and 2000 as well as data on the individual's attachment to branches of employment before and after program. The first two studies concern those who registered in the AEI in the autumn 1997. The third paper also includes those who enrolled in the autumn 1998.

The vocational part of Labor Market Training (LMT) is used in all three papers as comparison group. LMT had a very broad supply of programs which covered most branches on the labor market. The basic plan with LMT was to offer vocational programs aimed at branches with a high demand for workers. The program has a long history which in fact goes back as far as 1918. From the 1950's, and until the introduction of the AEI, LMT was the largest labor market program in Sweden. In 1997, some thirty per cent of those enrolled in LMT were in "preparatory training". It included more basic courses such as preparations for other programs. This thesis only concern the vocational part of LMT.

The set up of LMT resembled the AEI in that the participants in LMT received a training grant equal in size to the UI, and that the target groups of both programs included those with a weak position in the labor market. Since many individuals would have enrolled in LMT if the AEI had not been in operation, one may also argue that their proportions make them suitable for comparative studies. Had the AEI not been launched, many of

the participants in the AEI would have gone to LMT. The obvious difference between the AEI and LMT was that one was mainly theoretical while the other one was mainly vocational. The comparison between LMT and the AEI becomes one between a traditional and more vocational program and a newly introduced, theoretical one.

Related studies

Most of the economic evaluation literature deals with either the effects of labor market programs or the returns to education in the form of comprehensive schooling. The hybrid nature of the AEI, which offers comprehensive schooling as a labor market program, makes this thesis related to both these lines of research.

Evaluation studies of the returns to education has suggested that there would be an "iron law of wage differentials". It implies that the return to another year of education would be in the region of four to five per cent (e.g. Card, 1999). Swedish studies, using data containing valuable information to correct for unobservable characteristics, include Isacsson (1999), Kjellström (1999) and Meghir and Palme (1999). Their results did not substantially alter the conclusions from previous studies.

The results concerning wage differentials of another year of schooling influence what effects one would expect of the AEI, but the studies mentioned concerned formal education completed at a young age. Adult education may produce different effects. Considering the volume of adult education in Sweden it is striking how little we know of its effects. Alm Stenflo (2000) is the only economic study of adult education at komvux. She found positive effects on both income and employment but corrected for selection effects only by a few variables.

In an international perspective evaluations of adult education have foremost concerned community colleges in the United States. According to Kane and Rouse (1999), of those enrolled in community colleges, some 35 per cent are at least 30 years old and many of them study on a part-time basis, about half of the participants report work as their primary activity. Leigh and Gill (1997) studied groups that entered community college at different ages and did not find support for earnings differentials for those that attended com-

munity college after the age of 25. Jacobson *et al.* (1997) analyzed a sample of displaced workers and reported an earnings increase associated with a year of community college of approximately 2 – 5 per cent. More closely related, in a geographical context, is Holm *et al.* (1995) who evaluated general adult education in Denmark. They found a significantly beneficial effect of adult education, on both income and employment, and especially so for long-term unemployed.

In contrast to adult education, there are many Swedish studies which have evaluated the effects of LMT. Most of these have used data from the 1980's or the start of the 1990's, when Sweden underwent an economic recession which was relatively deep. At one stage, during that period, there were more than 100,000 individuals enrolled in LMT, representing about two per cent of the labor force. The survey of Swedish labor market program evaluations by Calmfors *et al.* (2002) contains results from twelve different studies of LMT. The results vary but studies based on data from the start of the 1990's tend to indicate negative effects. Carling and Richardson (2001) is one of few studies with data from the latter part of the 1990's. They compared eight different labor market programs. According to their findings the programs could be separated into two groups, with one group of programs producing more favorable effects. LMT was in the group with the less favorable effects.

The AEI has been evaluated by Westerlund (2000) and Axelsson and Westerlund (2001). Both studies used LMT as comparison group, including those in preparatory training. Their results indicated relatively beneficial effects of the AEI on various measures of unemployment. However, when they corrected explicitly for selection effects by using a two-step Heckman estimation, the differences between programs were not significantly different from zero.

The evaluation problem

Evaluation literature in economics generally seeks the average program effects of the program participants. As the literature originates from medicine, it is often expressed as the average treatment effect on the treated. To exemplify, let y_0 be the wage earnings before program, and y_1 the wage earnings after program. The average treatment effect on the treated is then

$E\,[y_1 - y_0 \,|\, D = 1]$

where $D=1$ for a participant and $D=0$ for a non-participant. To make the model relevant for causal analysis, the outcome of an individual is assumed independent of the outcomes of other individuals. In the case of such massive programs like the AEI and LMT, general equilibrium effects can be important. However, these effects are ignored in this thesis.

The fundamental problem of causal analysis is that the effect of a program, defined as the difference of the two potential outcomes, can never be observed for an individual. The ideal situation, from the point of view of the evaluator, would be if the enrollment in a certain program were random. Unfortunately for researchers, such experimental data are very rare. To approximate the so called "counterfactual state" of the participants, researchers instead use some group as comparison and check if the differences in average outcomes between the groups can be explained by other characteristics than program participation.

One way of doing this is by considering differences in observable variables between the two groups. This can be done by using, e.g., ordinary least squares (OLS) or the method of matching (which are both used in this thesis). Matching is non-parametric and avoids the functional form restrictions of OLS, and also corrects for potential bias related to the lack of overlap in observable characteristics and to differences in the distribution of observable characteristics between the two programs. However, if there are systematic differences in unobservable characteristics between programs, such as motivation or ability, these may also influence the outcome of interest and thereby bias the estimates from OLS and matching.

In economic evaluation literature it is widely believed that selection on unobservables is a crucial factor. This means that individuals with an ability to gain from a program are aware of this advantage and, therefore, on average, have a higher probability of enrolling to a particular program. The classical selection model stipulates conditions under which one may take unobservable differences between program participants into account. One of the problems when using this model is that in order to obtain reliable estimates, one usually needs valid instrumental variables, i.e. variables that explain the

participation decision but not the outcome. Such instrumental variables are often difficult to find. Moreover, as the reference group to the AEI in this thesis is participants in the vocational part of LMT rather than "non-participants", it is not obvious what kind of selection effects one should expect.

Main results

The main results of this thesis are that, for the sample that enrolled in the AEI 1997, there was a relatively beneficial effect on the probability of unemployment incidence. However, the estimates of unemployment duration, given that the individual did become unemployed straight from leaving program, indicate longer duration among the participants in the AEI relative to LMT. The estimation results on the annual wage earnings in 1999 indicate a negative effect of the AEI relative to LMT. Using annual wage earnings in 2000, the results indicate an improvement, although the effects were still negative, compared with the estimation results on wage earnings in 1999. Finally, the mobility between branches of employment was less frequent among participants in the AEI compared with LMT. This result was mainly a consequence of a low mobility among the individuals in the AEI that were employed in the public service sector before entering the program.

2. Summary of the papers

Paper [1] Comprehensive Education for the Unemployed - Evaluating the Effects on Unemployment of the Adult Education Initiative in Sweden

The first paper in this thesis evaluates the effects of the AEI relative to LMT on incidence to unemployment and, if unemployed straight after program completion, the duration of unemployment.

The empirical methods seek to take selection on unobservables into account. Concerning the estimations of unemployment incidence, a bivariate probit model is employed, estimating the participation and outcome regressions simultaneously. In estimations of unemployment duration, the additional problem of censored observations has to be addressed. In order to

consider both selection and censored observations, the estimation procedure follows Brännäs (2000) who used an instrumental variable adaptation of the symmetrically trimmed least squares estimator of Powell (1986).

The parameter estimates indicate that participation in the AEI decreased the incidence to unemployment but increased the duration of unemployment. However, the estimated parameter is in the latter case only significantly different from zero at the ten per cent level. Using various subsamples, the sample of females is the only one that indicate significant effects. Like the total sample, the estimated parameters indicate a lower probability of unemployment incidence for females but longer unemployment duration for those in the AEI. Moreover, the estimations of the probability of enrolling in the AEI indicate that individuals residing in municipalities with on average low educational levels among its population had a higher probability to participate in the AEI. It means that one of the targets of the AEI, to reduce educational differences across municipalities, seems to have succeeded.

Paper [II] Short Run Effects on Wage Earnings of the Adult Education Initiative in Sweden

The second paper of this thesis evaluates the effects of the AEI relative to LMT with respect to annual wage earnings in 1999. The aim is also to discern patterns in the effects between subgroups of participants in the AEI. Two separate estimation methods are used. The method of matching on the propensity score and the classical selection model. Matching is non-parametric and it avoids some sources of bias that are present in estimations like ordinary least squares (OLS) or the classical selection model. On the other hand, matching yields biased results if there is selection on unobservable characteristics between the programs which correlate with the outcome variable. The advantage with the selection model is that it, under certain conditions, take systematic differences in the unobserved heterogeneity into consideration.

Employing the method of matching on the propensity score, one obtains results that indicate negative effects of the AEI relatively to LMT on wage earnings, SEK -15,500. The estimates based on matching turned out to be slightly closer to zero than the OLS estimates.

Using the selection model, the estimations suffer from identification problems and there are no obvious instrumental variables to use. For the specification applied, a simple test for the validity of the instrumental variables is rejected in about half of the subsamples used, including the full sample. However, every estimate where the validity of the instruments cannot be rejected indicate a positive selection on unobservables into the AEI. It means that matching and OLS would overestimate the effects of the AEI. When interpreting the results, one must remember that one of the explicit aims of the AEI was to encourage individuals to enter higher education, and approximately half of the participants in the AEI were still in education and not included in the study.

Regardless of method used, the coefficient values of the different subsamples indicate that the effects of the AEI were less favorable for participants with a weak position on the labor market compared with the total sample. This may be a sign of a failure of the AEI which explicitly aimed at assisting those in a weak position. The estimated effects of the AEI are more positive, i.e. closer to zero, for the individuals in the Stockholm county. A possible interpretation of this is that a general labor market program such as the AEI is more dependent on a diversified labor market in comparison with LMT. Finally, there are also indications of differences in the estimated coefficients with respect to gender. The effects of the AEI seem to be relatively more favorable for women than for men.

Paper [III] The Adult Education Initiative in Sweden – Second Year Effects on Wage Earnings and the Influence on Branch Mobility

The third paper of this thesis uses the annual wage earnings of both 1999 and 2000 as outcome variables. It allows for an analysis of the effects concerning participants enrolled in 1998. Also, it allows for estimates of those enrolled in 1997 on two successive years following program completion. In addition, data on attachment to branches of employment, before and after program, provides a basis for studying the relative program effects on labor market mobility.

One may expect the beneficial effects of the AEI to be delayed relative to LMT as the AEI does not have a natural connection to a specific profession or a working site. Also, if the returns to the AEI vary across the population,

it would be reasonable to believe that those with the highest expected gains would enroll first. Concerning the mobility between branches of employment, the government's intentions with the AEI explicitly included to increase the mobility on the labor market.

The estimation methods employed are OLS and the classical selection model. For the estimations of mobility between branches of employment, binomial and multinomial logit models are used. The estimated parameters in the income equation indicate only small differences between those enrolled in 1997 compared with those enrolled in 1998. Estimations with wage earnings in 2000 indicate support for the hypothesis that there is a lag in the effects of the AEI relative to LMT. The differences in the effects of the AEI between the inland of Norrland and Stockholm county indicated in Paper [II], are not present in estimates using wage earnings from 2000. Besides this result, the implications concerning the effects of the AEI for subgroups in Paper [II] are confirmed.

Data on branches of employment show that the AEI participants more frequently came from the public service sector. Among those attached to some branch of employment before and after program, the probability of mobility was lower among participants in the AEI as compared with LMT. This result is largely due to the strong attachment to the public service sector among the AEI participants. Conditioning on being in the public service sector before program, the AEI participants were less likely to move to any other branch of employment. However, among those in manufacturing and construction, the individuals in the AEI had a higher probability of mobility to all other sectors. This result held for the 1997 sample but not for the sample which enrolled in 1998.

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