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The effect of increased employer contacts within a labour market training program

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Abstract

Using both register and survey data, two types of labour market training programs are compared. One program is part of the regular Swedish labour market training and the other, Swit, was initiated as an experiment during a two-year period, in an attempt to solve a bottleneck problem with people working with information technology. Enrolling in Swit increases the chances of finding employment by 20 percent, as compared to entering the conventional program, directed towards IT. The difference is due to the positive effect of more practical experience within Swit, which is especially large for individuals with a weak position on the labour market.

Keyword: Evaluation; Information technology; Employment rate; Propensity score matching.
JEL: C14, J68

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1 Introduction

In the spring of 1997, the Federation of Swedish Industries (FSI) approached the Swedish Social Democratic government about the lack of educated individuals on the borderline between specialists in information technology (IT) and users. These discussions resulted in the foundation of the SwIT labour training organisation (SwIT) by the FSI and the federation of the IT-companies.[1] They were commissioned by the government to carry out a labour market training (LMT) program to increase the competence within the IT area, which was named Swit.

One fundamental idea within SwIT was that there should be a close connection between the individuals in the LMT program and the industry. The individual was supervised by a project leader who was supposed to arrange training and find a host company for the individual. This organization differs from traditional LMT programs in Sweden – run by the Labour market administration (AMV). In this paper, we argue that the organisational difference is mainly due to increased contacts between participants and employees within and during the LMT, and not to differences in quality or the selection of program participants.

The Swit program increases the propensity for finding employment by 20 percent as compared to IT courses within AMV. From a complementary survey, we also find that access to practical experience within the scope of an IT course in the traditional LMT program gives the same effect as the difference between the two programs.

The results are of interest due to (i) the relatively large effect of the program - especially for individuals with a traditionally weak position in the labour market and (ii) the fact that reviewing the literature on evaluations of active labour market programs, we have not discovered any previous study of the effect of increased employer contacts or practical experience within the LMT programs.[2]

Section 2 describes the LMT programs in detail and discusses their comparability. The Handel data and the selections made are described in section 3. In section 4, the relative (compared with IT courses within AMV) effect (in terms of employment rate) of attending Swit is estimated and finally, section 5 concludes.

[1] See e.g. http://www.swit.org/

[2] See e.g. Heckman, Smith and Lalonde (1999).

2 The LMT Programs

The commission was that SwIT was to train 11,000 individuals, at least 75 percent of whom should be unemployed and the remaining 25 percent could be employed but at the risk of becoming unemployed. High priority groups which are traditionally underrepresented in the IT-industry should be encouraged to attend the program.[3]

In order to study the effect of the program, the ratio employed in Swit and IT courses administrated by the AMV (AMVc) are compared. The courses in AMVc are similar to the courses organized by SwIT. They are bought from the same companies and it is reasonable to assume the quality of the teaching to be the same. Hence, the effect should not be measured as the differences in the quality of teaching.[4]

The difference between the programs with respect to the employment rate six months after the end of the program is used as a measure of the effect of the program. The data is collected from two sources; (i) AMV (Handel) and (ii) a survey based on 1,000 individuals in each program. Handel contains information about all individuals registered at the public Employment service (PES) since 1991. In the survey, only those 75 percent that were unemployed at the time they entered Swit are included in the survey population.

2.1 A Comparison of the Programs

To be eligible, the applicants to both AMVc and Swit must be enrolled at the PES and be aged above 20. During the training, the participants receive a training allowance.[5]

AMV's procurement of vocational LMT is based on a biennial forecast of the labour market, performed by the county labour boards (CLB). The forecast is a collected judgement of the labour market in the county. As a ground for the forecast − beyond the statistics and judgment of the present situation − a survey is distributed to employers with more

[3] The project was funded with 1.3 billion Swedish kronor (SKR) or 0.15 billion ECU. The fundings should cover the cost for labour market courses, salaries, administration and also the subsidence for those attending the program.

[4] The cost for Swit and AMVc, respectively, was, on average 2,465 SKR and 2,603 SKR in 1998 (Näringsdepartementet, 1999 and Swit-yrkesutbildning, 2000).

[5] 25 percent of the trainees in the Swit were employed individuals, but at the risk of becoming unemployed. These individuals are not included in this study, however.

than 100 employees within the county. Most CLBs have staff responsible for keeping in contact with the local industry. There are also different regional and local institutions for collaboration between the industry and the CLB.[6] SwIT project leaders are supposed to contact companies, (by e.g. visits) and identify the need for competence.[7] The project leader is then supposed to produce a scheme for a suitable type of course for a specific individual in the program. This course is then approved and procured by the SwIT secretariat in Stockholm.

The selection of the participants differ somewhat between SwIT and AMV. The SwIT project leader performs a test and an interview with the applicant. The test is supposed to measure the ability to assimilate teaching and not the grounding within the IT-area (Martinson, 1999). The individual's motivation is of great importance for the AMV:s method of selection. The PES do not have a unified selection rule, it differs between the type of course and the needs of the employers. It has been documented (see e.g. "En effektivare arbetsmarknadsutbildning" (Ds 2000:38)) that all CLBs use tests in order to select between the applicants for the courses. Most often, the test is followed up by an interview performed by the company responsible for the teaching. Then, the individuals are grouped according to degrees of suitability.

The degree of contact between participants in Swit and project leaders during the period of training varies. In most cases, the project leaders visit the course. They are also supposed to discuss the achievements within the framework of the course (SwIT-yrkesutbildning, 2000). Within the AMV, public servants are supposed to pay a visit a few weeks into the course, in order to decide on the quality of the training. However, according to (Ds 2000:38), this practice is very seldom followed.

To conclude: the difference between the two approaches is, mainly, that in SwIT, the project leaders are actually totally responsible for the whole process – from making surveys of the future needs of the employers, selecting participants, support during the teaching and matching with an employer – while these functions are shared by many individuals within AMV.

[6] Regional competence boards and local employment service committees.

[7] SwIT themselves state that visits to the companies have taken place in an atmosphere of consulting, where the project leader and the employer (personnel manager) together discussed the future need for competence.

3 Description of Data and Selections

In Table 1, descriptive statistics are given for those attending Swit and AMVc.[8] We can see that Swit participants are significantly younger, better educated and there are less individuals with a vocational disability. There are no significant differences between the two groups in terms of the ratio of women and non-Nordic citizens.

To make a comparison of the employment status six months after the ending of the program, we discard 3,178 of the Swit-participants because of too short an evaluation period (see Table 2 for a list of the selection). For those in AMVc-programs, 10,642 individuals are discarded since they started the program before January 1, 1998 and 1006 individuals were still in training. Furthermore, 1,822 individuals were removed since the evaluation period is too short, thus, in total 13,470 individuals.

For some individuals, there is some uncertainty as concerns their unemployment history, and they were thus excluded from the study. First, we discard those individuals with zero days in either Swit or AMVc (58/209). We also discard individuals that have previously attended either Swit or AMVc (162/2,215). Finally, we also exclude the (956/3,776) individuals that have started another LMT program after finishing either LMT program within the period (six month) of evaluation.

The main reason for the last selection is that the AMV:s program can consist of a planned sequence of different courses, with different codes in the register (Handel) (e.g. a person who enters a LMT program to become a salesman can first take a computer course and thereafter enter a course in customer service etc.). The Swit program, on the other hand, is purely oriented toward IT. The second reason is that, since we are using register information, it is likely that individuals registered in a program for very few days are most likely due to a classification error of the official.[9]

The remaining sample consists of 3,760 and 6,941 individuals in Swit and AMVc, respectively. The descriptive statistics (see Table 3) are similar to the original sample. Studying Table 3, it appears that participants in Swit are, to a larger extent, male, younger, better educated, Nordic

[8] The period starts on January 1, 1997 for the AMVc and on January 1, 1998 for Swit, and ends on May 30 2000 for both programs.

[9] If the two programs differ in the propensities to return to a LMT program that are not decided in advance of starting the course, the last selection is of course not correct. Because of this, we have made the same analysis keeping these (956/3,776) individuals. Qualitatively, we get the same results.

Table 1: Descriptive statistics for Swit ($n = 8,055$) and AMVc ($n = 26,029$) programs during the period January 1 1997 to May 30 2000.

	Swit		AMVc	
Variable	Mean	St.dev	Mean	St.dev
Age	32.99	8.70	34.64	9.55
Man	0.64	0.48	0.63	0.48
Vocational disability	0.04	0.21	0.09	0.28
Non-nordic citizen	0.08	0.27	0.09	0.28
Less than 10 years of schooling	0.14	0.35	0.17	0.38
10-13 years of schooling	0.67	0.47	0.67	0.47
University degree	0.19	0.39	0.16	0.37

Table 2: Selection of individuals from the full data set. Swit program $1998/01/01 - 2000/05/30$; AMVc program $1997/01/01 - 2000/05/30$.

	Swit	AMVc
Number of individuals	8,055	26,029
Individuals with an AMVc before January 1998.		−10,642
Still in the program	−60	−1,006
To short a time for evaluation	−3,118	−1,822
Total	−3,178	−13,470
Individuals with zero days in Swit/AMVc .	−58	−209
Individuals registred in both LMT programs	−162	−2,215
Individuals in other LMT programs after Swit/ AMVc	−956	−3,776
Total	−1,186	−6,200
Individuals with more than two of the above criteria	69	582
Total number of individuals	3,760	6,941

Table 3: Description of the data set used in the comparison of the two programs.

		Swit		AMVc	
Variabel	Description	Mean	S.d	Mean	S.d
AGE	Age	33	8.64	35	9.42
MAN	Man	0.64	0.48	0.61	0.49
VD	Vocational disability	0.05	0.22	0.09	0.29
CITIZ	Non-Nordic citizen	0.08	0.27	0.09	0.29
EL 1	Less than 10 years of schooling	0.14	0.35	0.19	0.39
EL 2	10-13 years of schooling	0.67	0.47	0.66	0.47
EL 3	University	0.18	0.39	0.14	0.35
DAYS	Number of days in the LMT program	174	70	150	105
UNEPD	Number of days in unemployment	611	468	778	477
PROGD	Number of days in labour market programs within AMV (excluding LMT)	158	220	219	259
LMTD	Number of days in the LMT program (excluding IT courses)	94	177	118	202
CACD	Number of days in a computer active center	13	33	23	43
CCD	Number of days in IT courses	31	78	22	70
Y	Employed six months after finishing program	0.57	0.49	0.43	0.49

citizens and less vocationally disabled than participants in AMVc.[10] Swit participants also have fewer days of unemployment or in labour market programs (including LMT and computer active centre); furthermore, they have a larger number of days in previous LMT programs focusing on IT courses. On average, a Swit-course is somewhat longer than an AMVc-course (174/150 days). There are, however, no large regional differences in the ratio of participation in Swit and AMVc-programs.

The last line in Table 3 is the proportion of employed individuals. An individual is defined as employed six months after finishing the program if he/she is registered in Handel as (i) employed, (ii) employed for a limited period of time, (iii) employed part time and (iv) employed at an hourly basis or temporarily. From the table, it appears that 57 and 43 percent of the individuals finishing Swit and AMVc, respectively, are employed, that is, there is a 33 percent difference in the likelihood of becoming employed![11]

[10] Standard t-tests are given below in Table 6.

[11] When keeping the 956 and 3,776 individuals that entered another labour market program in the intermediate period, we find 50 and 33 percent in employment for Swit and AMVc, respectively; a difference of 17 percent points. According to the above

Figure 1 compares the two programs with respect to the employment ratio for men. Furthermore, we have sub-divided men into three levels of education and citizenship. For Nordic citizens, we find significant differences in the employment ratio for all levels of education. There are no significant differences in the pattern for Non-Nordic citizens. The most interesting finding might be that – for both programs – the effect is not monotonous with respect to education. For women, we find exactly the same pattern, but (due to a smaller number of observations) there is no significant difference in unemployment for women with university degrees.

Hence, SwIT seems to have successfully increased the chances of employment. However, on basis of Table 3, we concluded that the participants in the two programs differ as concerns background. In the following section, we control for these observed differences in characteristics by using matching.

4 Does the Swit LMT program have an effect?

When controlling for variables for difference in background, we employ the propensity score matching method (see e.g. Rosenbaum and Rubin, 1983). The conditional independence assumption (CIA) is a building brick for this method to be applicable.

Let Y_{i1} and Y_{i0} be one if individual i is employed (zero otherwise) and enrolled in Swit or AMVc, respectively and let $p(Swit = 1|\mathbf{x}) = p(\mathbf{x})$ be the propensity to enrol in Swit. Here, $\mathbf{x}$ is a vector of variables affecting the propensity to enter the program. The CIA states that conditional on $p(\mathbf{x})$, Y_{i1} and Y_{i0} are statistically independent. Formally, $(Y_{i1}, Y_{i0}) \perp\!\!\!\perp d|p(\mathbf{x})$, where d is one and zero if the individual enters Swit or AMVc, respectively.[12]

The generalized additive model (GAM) (see e.g. Hastie and Tibshirani, 1990) is employed in the estimation of the propensity, $p(x)$. The variables in Table 3 are used as covariates in the model (age, sex, vocational disability, level of education, citizenship and labour market history) but we also control for regional differences. For the continuous variables (labour market history and age) a loess smoother (locally weighted running-line smoother

discussion, this result was to be expected and we believe it to be a result of the structural differences between the SwIT and AMV courses.

[12] We assume independence between the individuals (i.e the stable unit treatment value assumption (SUTVA)) and that $0 < p(\mathbf{x}) < 1$.

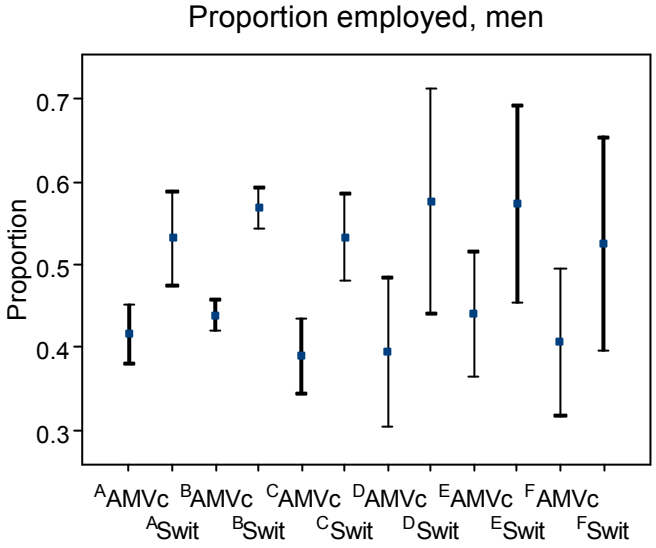

Figure 1: Proportion of men employed (including a 95 percent confidence interval) in subdivision $(A-C)$ Nordic citizens and $(D-F)$ non-Nordic citizens: where A ($n_{AMVc}=710$ and $n_{Swit}=299$) and D ($n_{AMVc}=111$ and $n_{Swit}=52$) are 9 years of schooling at most, B ($n_{AMVc}=2,686$ and $n_{Swit}=1,585$) and E ($n_{AMVc}=168$ and $n_{Swit}=68$) are 10-13 years of schooling and C ($n_{AMVc}=476$ and $n_{Swit}=347$) and F ($n_{AMVc}=112$ and $n_{Swit}=59$) are a university degree. The figures within parenthesis constitute the size of the subsample.

Table 4: Parameter estimates of the propensity score, using the GAM. As a reference, the parameter estimates from a standard logit (LOGIT) model are supplemented. The effect of the continuous variables in the GAM is estimated with a loess function with bandwidth of 2/3. A factor (in 25 levels) for regional differences is also included in the model.

	LOGIT			GAM		
Variabel	Estimate	St.error	t-value	Estimate	St.error	t-value
(Intercept)	0.832	0.118	7.061	-0.5604	0.0710	-7.894
UNEPD	-0.002	5.3e-5	-11.344			
PROGD	-5.4e-4	1.0e-4	-5.353			
LMTD	1.3e-4	1.2e-4	0.114			
CACD	-0.006	6.1e-4	-10.621			
CCD	0.002	2.9e-4	7.979			
AGE	-0.023	0.002	-8.966			
EL 1	0.176	0.060	2.935	0.176	0.060	2.912
EL 2	0.503	0.076	6.612	0.495	0.076	6.476
CITIZ	-0.240	0.079	-3.053	-0.271	0.079	-3.435
VD	-0.493	0.091	-5.438	-0.516	0.091	-5.671
MAN	0.104	0.044	2.364	0.107	0.044	2.420

with bandwidth 2/3) is being used. The results from the estimations are displayed in Tables 4 and 5. Parameter estimates from the GAM together with estimates from a standard logit model are presented in Table 4. The estimated parameters are all expected given the descriptive statistics in Tables 1 and 3 (e.g. the propensity for non-Nordic citizens and vocationally disabled to enter Swit is small and while it is high for well-educated men. Hence, groups traditionally holding a better position in the labour market enter Swit rather than AMVc.

From Table 5, we can see that the predictions of the GAM model improve on the standard logit model, especially when it comes to predicting Swit-participants. From the GAM, we estimate the distribution (see Figure 2) of the individuals enrolled in the two program and it is quite apparent that the support are almost overlapping.

The estimated employment propensities conditional on the propensity, $p(\mathbf{x})$, are shown in Figure 3. The most obvious feature of the figure is the positive slope, i.e., that individuals with a high propensity to enter the Swit-program also have a higher chance of being employed. Relating back to the results from the estimation of the propensity score given in

Table 5: Prediction with the semiparametric GAM and the logit model. Individuals predicted with values larger than and equal to 0.5 are classified as Swit participants and individuals with a prediction of less than 0.5 are classified as AMVc-participants.

Model	GAM		LOGIT	
Predicted\Observed	AMVc	Swit	AMVc	Swit
$I(\widehat{p}(\mathbf{x}) < 0)$	0.577	0.238	0.577	0.246
$I(\widehat{p}(\mathbf{x}) \geq 0)$	0.072	0.114	0.071	0.106
Proportion correctly predicted	0.690		0.683	

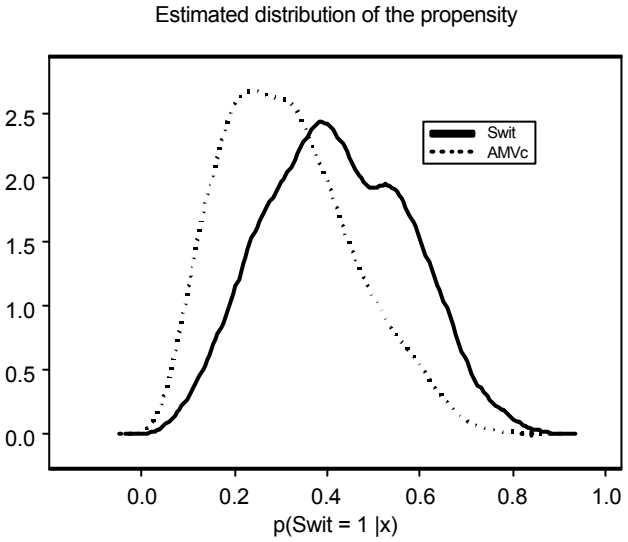

Figure 2: The estimated distribution of the propensity to enter the Swit-program. The estimation is performed using a Gaussian kernel with cross validated bandwidths (0.11 and 0.097 for the Swit and AMVc programs, respectively).

Table 4 we conclude that, absent the programs these individuals have a better chance of being employed. It is also noteworthy that the gradient differs between the two programs. For low values of $p(\mathbf{x})$, there is a large difference between the programs while this difference gradually disappears at larger values of $p(\mathbf{x})$, which is shown in Figure 4. The difference is $20-0$ percentage points and it is statistically significant (at the 5 percent level) over the interval $0 < p(\mathbf{x}) < 0.5$.

In Figure 4, we have also included the (re-scaled) empirical distribution from Figure 2. The mean effect is estimated over the common support $(0 < p(x) < 0.6)$ as the mean with respect to this distribution (evaluated at 160 point). This gives a mean effect of 10.2 percent points or a 23 percent effect of Swit against AMVc. As an alternative, the approach in Heckman, Ichimura and Todd (1998) is followed[13]

$$\Delta = \frac{1}{n^*_{Swit}} \sum_{i=1}^{n^*_{Swit}} \left[y_{1i} - \sum_{j=1}^{n_{AMVc}} k(\widehat{p}_i(\mathbf{x}_i), \widehat{p}_j(\mathbf{x}_j)) y_{j0} \right],$$

where $k(\widehat{p}_i(x_i), \widehat{p}_j(x_j))$ is a kernel estimator (see e.g. Härdle, 1990) and n^*_{Swit} is the individuals with the same support as the individuals within AMVc. We choose a Gaussian kernel with a bandwidth estimated using cross validation and $n^*_{Swit} = 3,247$ is the individuals with $0 < p(x) < 0.6$.[14] This gives $\Delta = 0.096$, i.e. Swit gives a 9.6 percent point (or a 22 percent effect) higher employment propensity than AMVc.

It is common to present evidence of the suitability of the propensity scores for reducing observed differences in the distribution of x between the two groups. In Table 6, the standardized difference prior to and after matching is presented. The standardized difference is defined as unmatched $t - test$ i.e. the (standard deviation) weighted difference in the mean values of the covariates between the two groups. The denominators are the same in the following comparison. All variables differ significantly as concerns background before matching except one. After matching, the standardized difference is reduced by 36 percent to 105 percent and for

[13] Individuals in the comparison sample are used anew with these two estimators. See e.g Rubin (1973, 1979) and Rosenbaum (1995) for estimators not re-using the comparision sample.

[14] When using all individuals in $Swit$, i.e. $n^*_{Swit} = 3,760$ we obtain the same estimate. Hence, the condition of common support is not important for the obtained result.

Table 6: Imbalance of the covariates prior to and after matching: standardized differences are calculated $(\overline{\mathbf{x}}_1 - \overline{\mathbf{x}}_0)\sqrt{Var(\overline{\mathbf{x}}_1) + Var(\overline{\mathbf{x}}_0)}$ and $(\overline{\mathbf{x}}_1 - \overline{\mathbf{x}}_{0M})\sqrt{Var(\overline{\mathbf{x}}_1) + Var(\overline{\mathbf{x}}_0)}$ where $\overline{\mathbf{x}}_1$, $\overline{\mathbf{x}}_0$ and $\overline{\mathbf{x}}_{0M}$ are the mean values prior and after matching for Swit and AMVc, respectively. The mean values after matching, $\overline{\mathbf{x}}_{0M}$, are calculated $\overline{\mathbf{x}}_{0M} = n_{Swit}^{*-1} \sum_{j=1}^{n_{AMVc}} k(\widehat{p}_i(\mathbf{x}_i), \widehat{p}_j(\mathbf{x}_j))\mathbf{x}_{j0}$.

	Prior	After	Reduction (%)
AGE	-11.23	-1.81	83.9
MAN	3.66	1.14	68.7
LH	-12.12	-2.24	81.5
CITIZ	-2.47	-1.59	35.8
EL 1	-8.19	-2.04	75.0
EL 2	1.29	-0.06	104.8
EL 3	6.02	2.02	66.4
UNEPD	-4.13	-1.32	68.0
PROGD	-4.62	-1.43	68.9
LMTD	-2.78	-0.94	66.1
CACD	-12.35	-2.58	79.1
CAC	4.59	1.19	74.1
County (factor in 25 levels)	-13.70	-2.94	78.5

almost all variables, there is no significant difference.[15]

The interpretation of Figurers 3 and 4 is that either (i) Compared with AMVc, Swit creates better job opportunities for individuals with a traditionally weak position on the labour market (e.g. individuals with a vocational disability, a large number of days in unemployment or less educated individuals) or that (ii) in the selection process, Swit has succeeded in picking out the high performers. Hence, in the latter case, it is only their test that makes the difference - not their organisation of the course.

These two explanations give different policy implications. In the following section, we conclude that the effect is not due to selection by using additional information from the survey.

[15] The results in the table remain the same if we use the new variance for the matched mean.

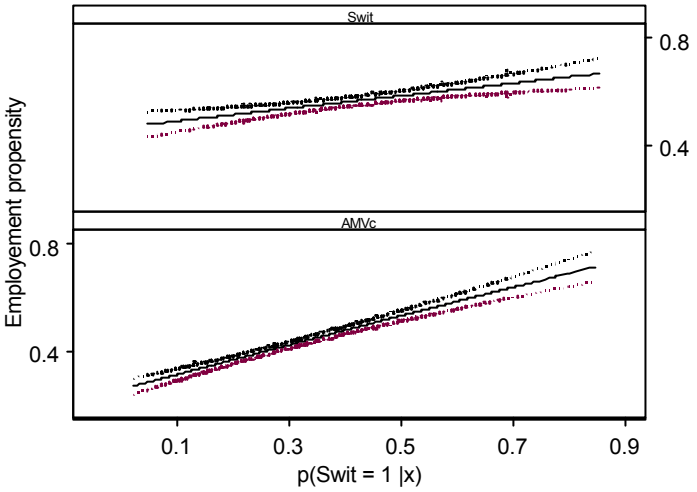

Figure 3: The estimated propensity for employment conditional on the propensity score $p(Swit = 1|\mathbf{x})$. A cubic B - spline smoother is employed. The smoothing parameters are estimated using cross validation

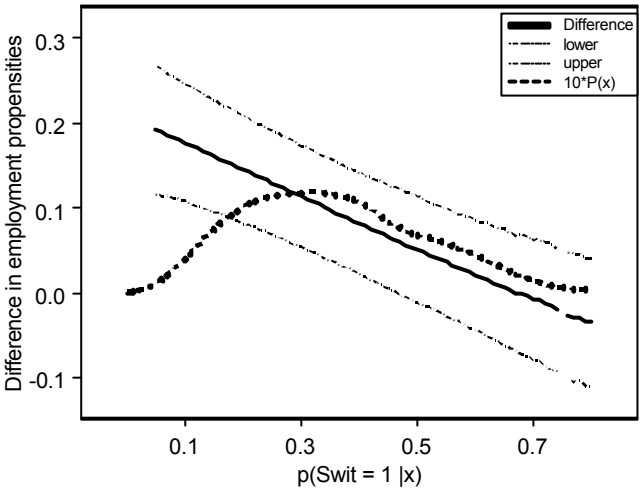

Figure 4: The difference between the propensities for finding employments for the two programs and the (re-scaled) and truncated empirical distribution. The difference is calculated at 160 points in the $0 < P(\mathbf{x}) < 0.8$ interval.

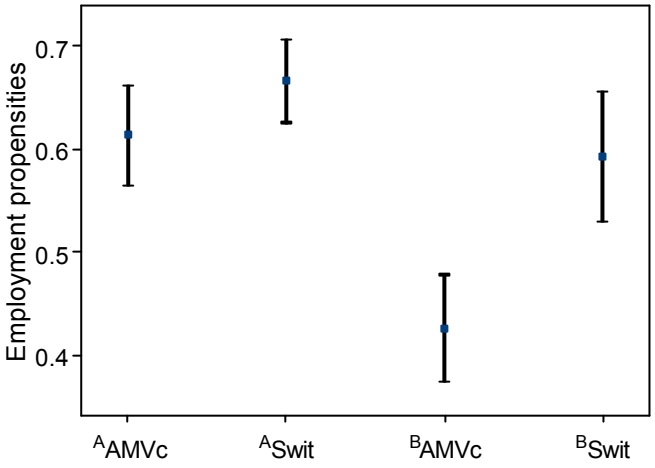

Figure 5: Proportion employed (with a 95% confidence interval) for individuals finishing a Swit or AMVc program. (A) practical experience ($n_{AMVc} = 383$ and $n_{Swit} = 530$) and (B) no practical experience ($n_{AMVc} = 352$ and $n_{Swit} = 231$). The numbers within parenthesis are the size of the sub-samples.

4.1 Selection or effect?

As a complement to the statistics from Handel, we use the survey based on 1,000 individuals from either program who participated in the programs during November − December 1999. The response rate was 79 and 80 percent for participants in Swit and AMVc, respectively. The interviews were performed by telephone during two weeks in June 2000.

According to the survey, 49 and 62 percent of the Swit and AMVc participants, respectively, were employed six month after having finished their training. The level of the employment rate is around 5 percent higher in the survey as compared to the register information. One reason for the quite large difference is the lack of information from jobseekers to PES when they get employed. When a jobseeker has not been heard of for three months, the PES send an inquiry asking whether the person is employed. If there is no response, the person is recorded as "work status unknown" instead of employed. For a lengthy discussion about these problems see e.g. "En effektivare arbetsmarknadsutbildning" (Ds: 2000:38.).

The difference in employment ratios, though, are very similar: 13 and 14 percent points for the survey and Handel, respectively.[16] Hence, the information in Handel is not systematically incorrect for these two programs.

The most interesting additional information obtained from the survey concerns the question of whether the training included practical experience. The employment rate for the two programs for individuals with and without practical experience is shown in Figure 5. On the left-hand side is the employment rate for respondents with practical experience and on the right-hand side is the employment rate for those with no experience. For the group with practical experience there is no significant difference in employment proportions for Swit and AMVc. For the group of individuals with no practical experience, however, there is a large, significant, difference. For Swit participants, there are no significant differences in employment rates between the two groups.

One explanation is that some of the Swit-participants had host companies that took an active part in the teaching and the theoretical part of the training. In practice, they served the same purpose of acquiring practical experience. Out of those 352 Swit-participants that stated that they had

[16] Using the three digit level, the difference is 13.2 and 13.7 percentage points, respectively.

no practical experience, 56 (15 percent) stated that they had contact with a host company. Another explanation for the observed pattern is that the Swit-training has selected those individuals with a good background (i.e. high $P(x)$) to the group with no practical experience and the opposite for AMVc. In that case, the pattern would be due to selection.

Unfortunately, it is not possible to match Handel with the survey for reasons of secrecy. We can, however, identify 97 and 66 individuals finishing an AMVc and a Swit program, respectively.[17] Out of these 97 AMVc-participants, 54 had no practical experience, while this is only the case for 21 of the 66 Swit-participants. The same pattern as in Figure 5 is observed. For obvious reasons, the differences are not significant for any sub-divisions. For those with practical experience, the employment rates are 60 and 58 percent for AMVc and Swit, respectively. For those with no practical experience, the corresponding figures are 46 and 62 percent. Within the AMVc program, the difference is 14 percentage points in the employment ratio between those with and without practical experience. Can this be due to different individual backgrounds?

In Figure 6 we can see – for this small sub-sample of individuals – that the propensity scores are distributed over the interval 0.1 to 0.6 and that there is no large difference in this distribution over the two groups of individuals. For small values of $p(x)$, practical experience seems to have quite a large effect which cannot to be due to differences in selection rules. The effect is of the same magnitude as when comparing the two programs.

5 Discussion

We find that 4 percentage points or 13 percent of the initial difference (of 14 percentage points or 33 percent) between the two program were due to differences in background variables for the individuals in the programs. Joining Swit increases the chance of finding a job by 20 percent (or 10 percentage points) as compared to entering the conventional AMVc. The difference cannot be attributed to SwIT having better selection rules. Relating to Figures 5 and 6, we conclude that practical experience is essential, especially for individuals with a weak position on the labour market, for improving the chances of finding employment.

[17] The identification is based on the time period finishing the program, area code number, gender, labour handicap and education.

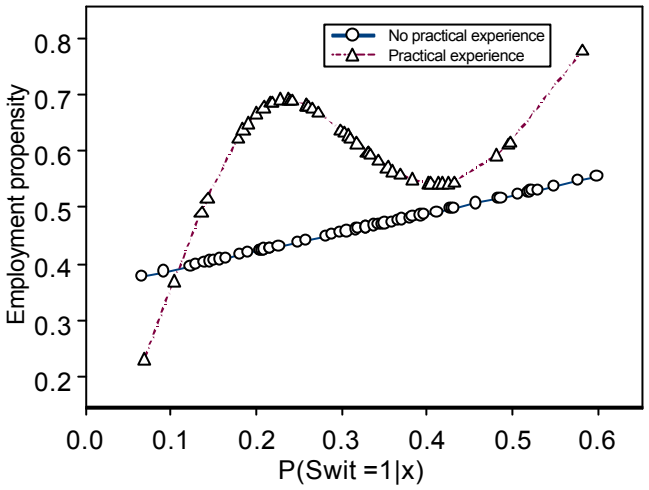

Figure 6: The propensity for finding employment for those in the AMVc program as function of the propensity score $p(\mathbf{x})$. Practical experience ($n = 43$) and no practical experience ($n = 54$). Estimation performed using a cubic B - spline. The smoothing parameters are estimated using cross validation.

We cannot see that it is the difference in organization (in that the project leader is responsible for the whole process rather than different individuals being responsible for different parts of the matching process) between the SwIT and AMV that improved the possibilities of becoming employed. But organisational differences may lead to an increased contact between the individuals in the program and future employers.

The effect of increased job search assistance has been studied in a few social experiments (see Meyer (1995) for a thorough review and also Ashenfelter, Ashmore and Deschênes (1999)). The evidence from these experiments seems to be that increased service and work search requirements have a positive effect (e.g. decreasing the time an individual spends on unemployment insurance). The question is whether economic incentives (stricter enforcement) or increased matching (increased service) is the key determinant for reducing the time on UI. The bottom line from these two studies is that "... the results of both sets of experiments imply that providing workers with subsidized job search assistance may be a relatively inexpensive way to provide cost effective, but small, benefits for both workers and society." Ashenfelter et al. (1999).

As stated in the introduction, we have not discovered any previous study of the effect of increased employer contacts or practical experience within LMT programs. Increasing employer contacts within LMT programs can be seen as increasing the matching of workers and jobs. If so, (i) increasing the employer contact in an LMT program is likely to be beneficial for society as well as for the worker and (ii) this experiment complies with the results found from the unemployment insurance experiments, i.e. that increasing service is beneficial.

The Swit-experiment was conducted in the IT-sector characterized by a large growth and where the employees are the main assets in the companies. Thus, the effects of increased matching (practical experience) are likely to be large in this specific sector. Even so, the estimated effect is very large and it is not unlikely that increasing the employer contacts within LMT in other sectors of the labour market also will increase the chances of employment for the participants.

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