

First draft: 6 December 1996
This version: 3 February 1998

The Swedish Youth Labor Market in Boom and Depression

Per-Anders Edin*, Anders Forslund** and Bertil Holmlund***

Abstract

This paper is concerned with the labor market experience of Swedish youths during the 1980s and the 1990s. The first objective is to portray early economic attainment among young Swedes. The second objective of the paper is to examine the impact of labor market programs on youth employment. We find that the slump in the 1990s has been associated with dramatic increases in youth unemployment and youth participation in active labor market programs. The impact on unemployment rates by age and education has been roughly proportional, however. The evolution of employment and unemployment does not offer much ground for the popular hypothesis that the recent rise in unemployment is driven by large and pervasive shifts in the demand for labor by skill attributable to technological innovation. The employment crisis has been met by an unprecedented increase in active labor market programs, in large part targeted at unemployed youths. There is a risk that these programs may crowd out regular youth employment, a hypothesis that is supported in our empirical investigation of regular youth employment in Swedish municipalities.

We are grateful to Susanne Ackum Agell, Peter Fredriksson, Lawrence Kahn and participants at the NBER Conference on Youth Unemployment and Employment in Advanced Countries, Winston-Salem, December 1996, for useful comments.

* Department of Economics, Uppsala University, Box 513, SE-751 20 Uppsala, Sweden, phone: +46 18 471 10 97, fax: +46 18 471 14 78, e-mail: per-anders.edin@nek.uu.se, and NBER.

** Department of Economics, Uppsala University, Box 513, SE-751 20 Uppsala, Sweden, phone: +46 18 471 11 13, fax: +46 18 471 14 78, e-mail: anders.forslund@nek.uu.se.

*** Department of Economics, Uppsala University, Box 513, SE-751 20 Uppsala, Sweden, phone: +46 18 471 11 22, fax: +46 18 471 14 78, e-mail: bertil.holmlund@nek.uu.se.

1. Introduction

The Swedish labor market experienced a dramatic change in the early 1990s. The overall unemployment rate was 1.5 percent in 1989 and 1.6 percent in 1990. By 1993, the unemployment rate had increased to 8.2 percent. Since then unemployment has remained at a high level (8.1 percent in 1996). The slump induced a sharp expansion of various labor market programs; the number of people in programs increased from 1 percent of the labor force in 1990 to 5 percent in 1994. Most of the program participants are classified as being out of the labor force, so a mirror image of these developments was a substantial fall in labor force participation ratios (from 87 to 80 percent for males and 82 to 76 percent for females). The employment-to-population ratio fell by over 10 percentage points during the same period, from 83.1 percent in 1990 to 72.6 percent in 1993 and 71.6 percent in 1996.

The sources of the steep fall in employment have been discussed elsewhere, and we do not attempt to summarize or contribute to this debate here. Suffice it to say that macroeconomic shocks played an important part, partly driven by external forces (such as higher real interest rates) and partly by internal policy failures. In addition to the macroeconomic shocks that hit the economy in the late 1980s and the early 1990s, there are a number of plausible supply side factors, such as an increasingly more generous unemployment insurance system, that may have caused some trend rise in the equilibrium unemployment rate over the past three decades.

It is well known that the burden of unemployment is not shared equally among people; the young and the less skilled are particularly prone to unemployment. The present paper is concerned with the labor market experience of Swedish youths during the 1980s and the 1990s. The first objective is to portray early economic attainment among young Swedes. We make use of two data sets with information on labor market outcomes and education among

school leavers. Are parental resources and early educational choices crucial for the school leavers' success in the labor market and in the education system? Are there distinct differences between the patterns prevailing in the years of boom in the late 1980s and the years of slump in the 1990s? Has the slump been particularly costly for disadvantaged youths?

The second objective of the paper is to examine the impact of labor market programs on youth employment. The sharp deterioration of the labor market situation in the 1990s has been met by an unprecedented increase in various active labor market programs, such as educational programs and measures to put people into work (or work-like activities). Several programs have been explicitly targeted at unemployed youths. What is the impact of these programs on regular youth employment? We use panel data on employment by Swedish municipalities to examine to what extent the programs crowd out regular employment.

2. Youth Employment and Unemployment in Sweden

Youth relative wages increased substantially in Sweden between the late 1960s and the mid-1980s, along with a sharp decline in overall wage differentials. The ratio between hourly wages of 18-19-year-olds and wages of 35-44-year-olds stood at 0.55 in 1968 and had increased to 0.80 in 1986. After 1986 there has been a modest drop in the relative wages among teenagers. Relative wages among 20-25-year olds have been much more stable around 80 percent, with a minor increase between 1968 and 1974. The causes of pay compression in Sweden have been explored elsewhere. In our view, they have to be found in fundamental demand and supply forces as well as egalitarian wage policies pursued by the strong trade unions. (See Edin and Holmlund, 1995, for further details and discussion.)

¹ For discussions the youth labor market before the downturn in the 1990s, see e.g. Schröder (1995), Blomskog (1997), and Blomskog and Schröder (1997).

To the extent that the rise in youth relative wages has been institutionally driven one would expect adverse employment responses. To what extent, then, are there signs of deteriorating labor market outcomes for Swedish youths? Somewhat surprisingly, perhaps, the period of marked pay compression in Sweden from the late 1960s to the mid-1980s does not seem have been accompanied by substantially increasing inequality in employment outcomes.

There is evidence of some trend deterioration in youth labor market performance, however. From the mid-1960 and to the early 1980s there is trend increase in youth unemployment rates and also a trend increase in youth relative to adult unemployment. Youth participation in labor market programs increased substantially in the mid-1980s. For example, over 10 percent of the 16-19-year-old population were engaged in public employment programs in 1984. Program activity declined however rapidly during the strong labor market improvement of the late 1980s.

A comparison between the structure of employment and unemployment in 1970 and 1990 is sufficient to capture the main trends over the 1970s and the 1980s; these two years are characterized by a very tight labor market with very low unemployment (1.4 percent in 1970 and 1.6 percent in 1990). The unemployment rate among 18-24-year-olds increased from 2.5 to 3.5 percent between 1970 and 1990 (Table 1). There was a substantial increase in the youth employment-to-population rate, primarily driven by rising labor force participation among young women. School enrollment among teenagers increased as the senior high school was extended. Rising school enrollment has made teenage labor force participants an increasingly selected group with relatively low educational attainment, which contributes to relatively high unemployment.

Table 1 Labor Market Activities and School Enrollment Among 18-24 olds, percent.

	Unemployment*	Employment**	School enrollment**		Labor market programs**
			16-19	20-24	
1970	2.5	66.9	38.4	12.8	N.A.
1990	3.5	75.1	46.4	11.1	2.1
1993	19.1	49.5	63.2	18.9	10.4
1995	18.9	49.1	65.0	21.7	7.4

Notes: * Percent of labor force.

** Percent of population.

Sources: Labor force surveys, Statistics Sweden and Thoursie (1996).

Youth unemployment skyrocketed as the slump hit the Swedish economy in the early 1990s. Overall unemployment increased from 1.6 percent to 8.2 percent between 1990 and 1993 and has remained stubbornly high. Unemployment among 18-24-olds increased from 3.5 percent to 19.1 percent during the same three-year period. The overall employment-to-population ratio declined by 10 percentage points, whereas the youth employment rate declined by no less than 25 percentage points. There has also been a substantial increase in school enrollment, including activities organized as active labor market policies. We will return to a discussion of these policies in Section 4. Suffice here to note that they were traditionally not particularly targeted at unemployed youths, but this changed already in the mid-1980s. By 1993, 10 percent of the 18-24-year-olds were enrolled in various labor market programs.

Another group that was hit very hard by the slump in the downturn in the Swedish economy in the 1990s was immigrants. Unemployment rates among recent immigrants (foreign citizens) are much higher than among Swedish citizens. Whereas average unemployment among 20-24-

year-olds increased from 3 percent to 17 percent between 1990 and 1994, unemployment among foreign citizens in this age group rose from 6 to 30 percent. Unemployment among recent immigrants aged 35-44 was as high as 20 percent in 1994.

The depression that hit the Swedish economy in the early 1990s has affected all age groups and all education groups. Unemployment among 16-24 year olds increased by a factor of 5 whereas unemployment among 35-44 year olds increased by a factor of 6. The ratio between youth (16-24) and adult (35-44) unemployment was 3.7 in 1990 and 2.9 in 1993. The ratio between low-education unemployment (compulsory schooling) and university unemployment stood at 2.5 percent in 1990 and at 2.4 percent in 1993. Indeed, there is considerable evidence from a number of countries that unemployment relativities for age and education groups are fairly stable over the business cycle. (See Nickell and Bell, 1995, for evidence and interpretations.)

3. Labor Market Outcomes in the 1980s and the 1990s

3.1 Labor market status among disadvantaged youths

To provide a somewhat more detailed background for our discussion of disadvantaged youth in the 1980s and 1990s, we start by describing the main trends in employment and non-employment for various age-education groups since 1971. We choose to concentrate on males to abstract from the massive increase in female labor force participation during the period in question.

Since 1971 there have been a number of major changes that may have affected the youth labor market. The combination of (i) an increasingly selected group that do not stay on at school, (ii) adverse labor demand shifts, and (iii) pay compression could potentially have created a large increase in joblessness among disadvantaged youth. Some evidence on this issue is presented in

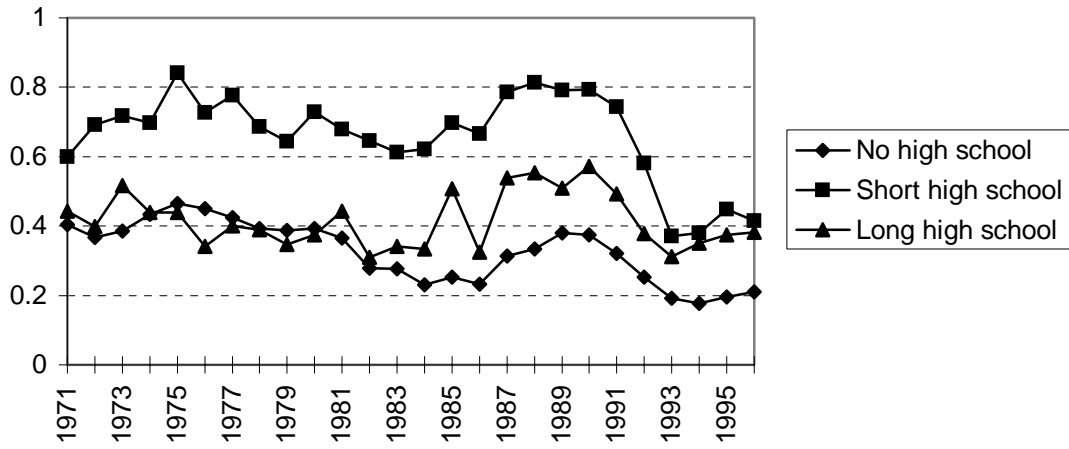
Figure 1, where we graph the employment-to-population rate for males of different ages (16-19, 20-24, and 35-44) with different levels of schooling (no high school, 1-2 years of high school, and 3-4 years of high school).²

There are two striking features of these graphs. The first is the dramatic development of the 1990s; the second is the absence of strong long-run trends in employment. The only trend in the data is for teenagers (with no high school). Employment rates fall rather steadily for this group with the exception for the boom in the late 1980s. The reason for this trend seems to be the increased school enrollment of teenagers with no previous high school education (see Table 1 above). Apart from this it seems difficult to discern any sizable long-run trends in these data. Edin, Harkman and Holmlund (1995) contains a more detailed analysis of these data in terms of employment and non-employment for different parts of the

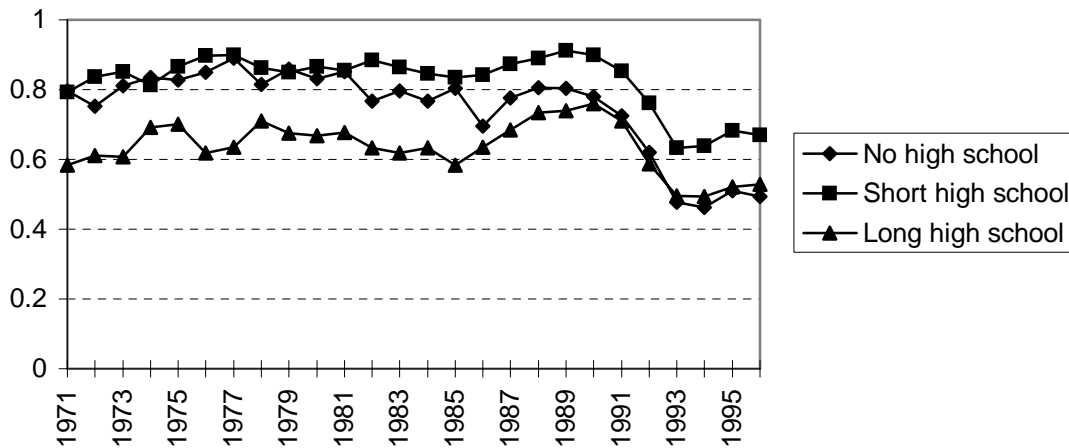
²The corresponding graphs for unemployment-to-population rates and non-participation rates are reported in the Appendix.

Figure 1 Employment-to-population ratios for males with no high school, short high school or long high school, Labor Force Surveys

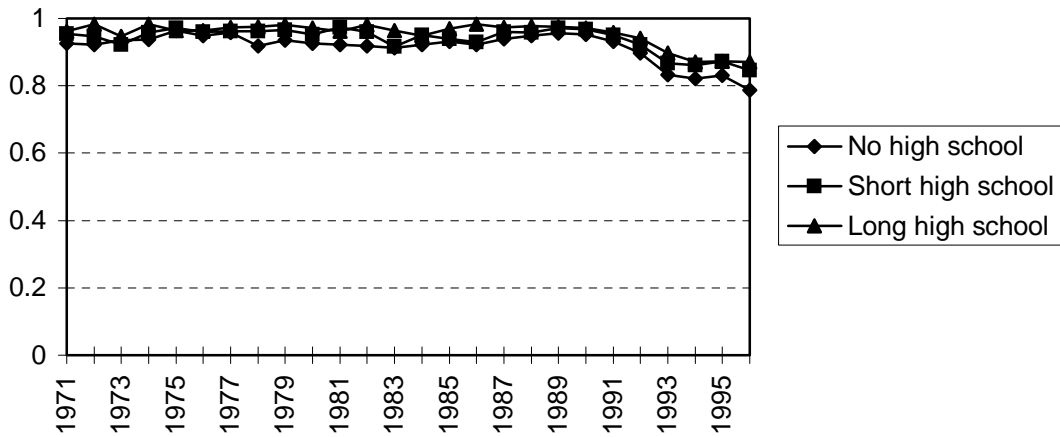
A. 16-19 years



B. 20-24 years



C. 35-44 years



skill distribution and they come to similar conclusions. Apart from the teenagers, there is very little evidence of increasing inequality in employment outcomes.

The patterns of employment and non-employment rates in the Swedish labor market are not easily interpreted in terms of the popular hypothesis about global pervasive trends in labor demand that are particularly harmful for less skilled workers. The empirical work reported in Edin, Harkman and Holmlund (1995) documented some trend increase in non-employment among the less skilled, and some increase in mismatch. These trends are exclusively driven by deteriorating labor market performance among 16-19 year-olds. Employment rates among prime-aged men in the bottomdecile of the wage distribution have been roughly constant during the period 1971-91. This stability is in marked contrast to the sharp fall in employment rates among the least skilled men in the US labor market (see Juhn, Murphy and Topel, 1991).

One might speculate that the growth of the Swedish public sector has counteracted negative relative demand shifts for low skilled workers, thereby being particularly helpful for the less skilled in the labor market. The share of public employment in the labor force increased from 20 percent in the early 1960s to almost 40 percent in the mid-1980s. Public-sector employment increased by 4-5 percent per year during the 1970s, with almost all of the expansion taking place in the local government sector. Is there any evidence that low-skilled workers who have been priced out of the private sector have been employed by the rapidly expanding public sector? The fact is, however, that the public sector does not employ many low-educated men (see Edin and Holmlund, 1994, for further discussion). The number of men in the public sector with only basic (compulsory) education has been around 40 000 - 50 000 during the past 20 years, to be compared with over one million low-educated men in the private sector during the

1970s (and over 600 000 in the early 1990s). It does not seem very plausible that the expanding public sector has been an important alternative employer for low-skilled men that have lost their jobs in the private sector.³

3.2 Labor market outcomes and socioeconomic background in the 1980s and the 1990s

We will in this section portray labor market outcomes among Swedish youths at age 22 by means of data sets from 1986 and 1995. During those two years, Statistics Sweden made surveys among those who left the compulsory nine-year school seven years earlier, i.e., in 1979 and 1988. The respondents were asked in detail about their present labor market situation, and to some degree about their labor market history in the past few years. The data for 1995 include information on parents socioeconomic background as well as immigrant status; the data for 1986 do not have this information.⁴

³The role of the public sector is much larger for women. Between 1971 and 1984, female employment grew by 39 percent. Expansion of the public sector accounted for 96 percent of these jobs (Edin and Topel, 1997).

⁴ For further information on the data, see SCB (1987) and (1996).

Table 2 Labor Market Status by Family Background and Education, February 1995. Linear probability models.

	Employment		Unemployment		Programs		Education		Non-partic. (excl. education)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	.447 (34.2)	.309 (20.3)	.108 (12.67)	.044 (4.42)	.044 (9.22)	.041 (7.18)	.368 (32.20)	.603 (47.42)	.034 (4.64)	.004 (0.44)
Female	-.048 (4.72)	-.036 (3.59)	-.046 (6.91)	-0.043 (6.60)	-.017 (4.73)	-.017 (4.54)	.037 (4.13)	.020 (2.41)	.074 (13.23)	.076 (13.52)
Foreign citizen	-.108 (10.12)	-.062 (5.76)	.026 (3.73)	.040 (5.67)	.005 (1.20)	.006 (1.57)	.072 (7.73)	.004 (0.50)	.005 (0.92)	.011 (1.83)
<u>Family background</u>										
SEI-1	.167 (10.78)	.111 (7.13)	.039 (3.86)	.014 (1.38)	-.003 (0.60)	-.005 (0.85)	-.244 (18.02)	-.148 (11.39)	.041 (4.78)	.028 (3.16)
SEI-2	.172 (10.45)	.112 (6.82)	.044 (4.06)	.025 (2.30)	-.003 (0.56)	-.006 (0.91)	-.229 (15.94)	-.139 (10.13)	.017 (1.84)	.008 (0.81)
SEI-3	.151 (7.95)	.118 (6.29)	.009 (0.73)	.000 (0.01)	-.004 (0.60)	-.005 (0.79)	-.156 (9.36)	-.108 (6.89)	-.001 (0.07)	-.005 (0.47)
SEI-4	.069 (4.09)	.054 (3.25)	.011 (0.98)	.013 (1.19)	-.007 (1.21)	-.009 (1.39)	-.066 (4.52)	-.054 (3.93)	-.006 (0.62)	-.004 (0.43)
SEI-5 (omitted)	0	0	0	0	0	0	0	0	0	0
SEI-6	-.074 (-0.75)	-.008 (0.08)	-.013 (0.20)	.014 (0.22)	.037 (1.02)	-.035 (0.96)	.115 (1.33)	.004 (0.05)	.009 (0.17)	.025 (0.45)
SEI-7	.186 (8.12)	.149 (6.59)	.011 (0.72)	.001 (0.09)	-.007 (0.89)	-.009 (1.08)	-.180 (8.96)	-.126 (6.70)	-.010 (0.79)	-.015 (1.17)
SEI-8	.214 (5.85)	.157 (4.38)	-.007 (0.28)	-.020 (-0.86)	-.012 (0.93)	-.015 (1.11)	-.204 (6.40)	-.124 (4.14)	.009 (0.45)	.002 (0.10)

Table 2, cont.

	Employment		Unemployment		Programs		Education		Non-partic. (excl. education)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<u>High school education</u>										
No		.122 (7.50)		.124 (11.58)		-.002 (0.32)		-.317 (23.29)		.072 (7.88)
1 yr		.204 (8.21)		.113 (6.95)		.002 (0.23)		-.367 (17.73)		.048 (3.42)
2 yr vocational		.238 (18.17)		.088 (10.20)		.008 (1.55)		-.376 (34.38)		.042 (5.72)
3 yr vocational		.975 (12.48)		.052 (3.59)		.013 (1.62)		-.362 (19.70)		.022 (1.77)
2 yr theoretical		.124 (5.99)		.073 (5.40)		.000 (0.03)		-.211 (12.26)		.014 (1.21)
3 yr theoretical (omitted)		0		0		0		0		0
R ²	0.031	0.068	0.010	0.028	0.003	0.003	0.051	0.166	0.024	0.031
# observations	9515	9515	9515	9515	9515	9515	9515	9515	9515	9515

Notes: t-values in parentheses. The family background socioeconomic indicators (SEI) are as follows: (1) unskilled blue-collar worker; (2) skilled blue-collar worker; (3) white-collar worker, lower level; (4) white-collar worker, intermediate level; (5) white-collar worker, upper level; (6) self-employed professional; (7) owner of business; (8) farmer.

We begin by looking at labor market status in 1995, which allow us to examine the role of parental background and immigrant status. We estimate linear probability models for ease of interpretation and focus on five states in February 1995: (regular) employment, unemployment, labor market programs, education, and non-participation. The results are reported in Table 2. The first column for each case only includes parental characteristics in addition to gender and immigrant status; the second includes in addition the high school choice of the respondent⁵. The results suggest that parental background does matter for labor market outcomes. These results become somewhat weaker, but are still strongly significant, when education is accounted for. This suggests that parental effects work partly through educational choice. The effects of parental background are very strong for employment and education, much weaker for unemployment and non-participation, and of no importance for program participation.

What do these estimates say about the situation for disadvantaged youths? The results here are not quite clear cut. First, if we define disadvantaged youth by parents' skill, we find that youths with blue-collar parents (SEI 1 and 2) are not worse off in all dimensions. They have lower school enrollment rates and possibly somewhat higher unemployment, at least when we do not control for education, but they have higher employment rates. A similar pattern is true also for youths with farmer parents (SEI 8). Their lower school enrollment is offset by higher employment rates.

⁵We choose to use high school curriculum instead of highest level of schooling as our education variable, since a majority of those choosing to continue to college have not graduated by the date of the survey. Most of those who attend college have a three year theoretical high school degree.

Second, as could be expected, the situation of youths with immigrant background seems quite problematic.⁶ Lower employment rates and higher unemployment rates are only partly offset by higher school enrollment. Furthermore, the higher school enrollment rate disappears when we control for high school choice. Even if youths with an immigrant background do worse than "native" youths, their situation seems reasonably good compared with recent immigrants (see Wadensjö, 1996). One should bear in mind that the group of "immigrants" we have in our sample have completed the Swedish compulsory school and spent several years in the country.

Finally, we note that youths who decided not to go on to high school experience a tough situation in the labor market. Their high unemployment rates and low school enrollment rates are not by far compensated by higher employment rates. This group also has a substantially higher rate of non-participation. Also, it seems that youths that choose vocational high schools or short theoretical high schools are worse off than those who choose long theoretical high schools, even if these differences are smaller than those between no high school and long theoretical high schools.

We have also undertaken a direct comparison of labor market outcomes in 1986 and 1995. In addition to gender, we include dummies for early education (whether the individuals continued to high school and the type of high school education). The education variable is the only measure of skill that is available in both samples. The estimates of linear

⁶I mmigrant background is defined as having both parents born abroad.

Table 3 Labor Market Status by Education, February 1986 and February 1995. Linear probability models.

	Employment		Unemployment		Education		Non-participation (excl. education)	
	1986	1995	1986	1995	1986	1995	1986	1995
Constant	.564 (49.59)	.343 (22.68)	.025 (4.26)	.057 (5.85)	.402 (42.36)	.566 (45.84)	.009 (1.63)	.005 (0.58)
Female	-.033 (3.75)	-.051 (4.13)	.001 (0.30)	-.039 (4.87)	.005 (0.69)	.023 (2.25)	.027 (6.58)	.076 (11.24)
<u>High school education</u>								
No	.186 (13.35)	.176 (8.31)	.061 (8.36)	.123 (9.11)	-.296 (25.53)	-.398 (23.05)	.049 (7.73)	.093 (7.93)
1 yr	.236 (12.20)	.277 (9.09)	.052 (5.19)	.096 (4.93)	-.320 (19.87)	-.434 (17.48)	.032 (3.56)	.054 (3.21)
2 yr vocational	.253 (20.42)	.302 (17.94)	.026 (4.03)	.083 (7.72)	-.293 (28.45)	-.440 (32.13)	.015 (2.55)	.045 (4.82)
3 yr vocational	-	.350 (13.97)	-	.058 (3.60)	-	-.440 (21.53)	-	.018 (1.29)
2 yr theoretical	.178 (11.17)	.169 (6.80)	.025 (4.26)	.074 (4.66)	-.203 (15.32)	-.268 (13.22)	.011 (1.52)	.020 (1.46)
3 yr theoretical (omitted)	0	0	0	0	0	0	0	0
R ²	0.045	0.062	0.009	0.019	0.091	0.159	0.011	0.031
# observations	9770	6188	9770	6188	9770	6188	9770	6188

Notes: t-values in parentheses.

probability models for employment, unemployment, education and non-participation in one week in February 1986 and one week in February 1995 are shown in Table 3.⁷

Once again the results suggest that early schooling decisions are strongly associated with labor market outcomes for youths. Youths with no or short high school education have higher unemployment rates, lower schooling rates and higher rates of non-participation. However, they also have higher employment rates. The labor market situation for youths has of course deteriorated substantially between 1986 and 1995. It is still true that low skilled youths have higher unemployment and non-participation rates as well as lower rates of school enrollment. It is unclear, though, to what extent the 1990s crisis has hit the low skilled youths more than other youths. Low skilled youths have reduced their school enrollment and increased their rates of non-participation, but the development of employment and unemployment rates may be interpreted somewhat differently. Youths with no high school have about 18 percentage points higher employment rates than youths with long theoretical high school in both 1986 and 1995. The entire fall in youth employment between these years is attributed to a shift in the intercept. Thus, high skilled youths experienced a larger relative drop in employment rates, since they had a lower employment rate initially.

Low skilled youths have experienced a larger absolute increase in unemployment rates than high skilled youth. The unemployment differential between no high school and long theoretical high school increased from 6 to 12 percentage points between 1986 and 1995. However, this increase is less striking in relative terms. The unemployment rate for youths with long theoretical high school was also more than doubled

⁷Employment programs organized by the labour market agency are included in regular employment. These were not reported separately in 1986, when they accounted for about one percent of the sample, SCB (1996).

during this period (from 2.5 to 5.7 percent). Thus, the pattern of stable unemployment relativities observed across educational groups in aggregate data also appear within this group of youth.

The estimates reported above refer to a snapshot of the labor market situation of two cohorts at age 22 at different points in time with very different overall labor market conditions. To get some idea of the dynamics of labor market entry, we summarize the labor force status of each cohort by six month periods for two and a half year prior to the interview in Table 4. The respondents were asked to report their main activity by six month period. Here we report these data for the full samples. The same exercise for the low skilled (no high school) youths tells a similar story.

Apart from noting the large differences in levels across years, there is a striking difference in the development over time across cohorts. In the 1980s there is a strong and steady increase employment rates over time - from 59 percent in the fall of 1983 to 71 percent in the fall of 1985. There is no such trend in the 1990's. The employment rate actually falls early on to recover during the last year and a half. The long run consequences of these problems of entering the labor market for the 1990 cohort will probably depend crucially on what alternative routes of entering the labor market they have access to. The table illustrates that the lower employment rates (26 percentage points) are "compensated" mainly by higher participation in public employment programs (8 points), higher unemployment rates (6 points), and higher school enrollment rates (7 points).

Table 4 Labor Market Status by Six-Month Period: 1980s vs. 1990s (percent)

A. 1986 Sample

	Fall 1983	Spring 1984	Fall 1984	Spring 1985	Fall 1985
Employment	59.3	62.2	66.8	69.7	71.3
Programs	4.5	3.4	2.0	1.7	1.2
Unemployment	4.6	3.2	3.6	2.8	3.6
Education	15.6	16.3	17.4	17.4	18.2
Non-participation (excl. Education)	14.9	14.1	8.5	7.7	5.4

B. 1995 Sample

	Fall 1992	Spring 1993	Fall 1993	Spring 1994	Fall 1994
Employment	40.6	38.4	39.5	41.4	44.9
Programs	12.8	14.8	12.8	14.0	9.7
Unemployment	7.8	8.8	10.8	8.2	9.3
Education	22.3	22.1	22.9	23.3	24.8
Non-participation (excl. Education)	13.3	13.0	11.0	10.4	7.7

The notion that unemployment can have serious long run consequences for youth is probably not controversial. The question is then whether participation in public employment programs or regular education can counteract these negative effects. We will return to a discussion of labor market programs in section 4. Concerning the effects of increased school enrollment rates, we have no direct evidence. Judging from the type of education these youths enroll in - all of the increase is in regular college/university education - it is plausible that increasing education has a counteracting effect.

3.3 Evidence on wage behavior

To what extent has the slump been associated with widening wage differentials among age and education categories? We have used data from two surveys, augmented with information on wages based on the

respondents' own reports, to estimate standard wage equations with age and education dummies. The surveys are the Household Market and Nonmarket Activities (HUS)⁸ and the Labor Force Survey (AKU); the latter is undertaken by Statistics Sweden and has included questions on wages for later years. The wage data in AKU seem to be plagued with substantial measurement errors. The standard deviation of log hourly wages in the 1991 sample is about twice the size of those

Table 5 Youth relative wages

	16-19 vs 35-44 yrs			20-24 vs 35-44 yrs	
	HUS 18-19 yrs	AKU 16-19 yrs	AKU 18-19 yrs	HUS	AKU
1984	0.66	-	-	0.80	-
1986	0.80	-	-	0.80	-
1988	0.76	-	-	0.83	-
1991	0.74	0.67	0.72	0.81	0.82
1992	-	0.68	0.69	-	0.82
1993	-	0.76	0.79	-	0.82
1994	-	0.75	0.74	-	0.81

Note: All entries are based on regressions with education and gender controls. The HUS estimates are reproduced from Edin and Holmlund (1995).

reported by Edin and Holmlund (1995) from the HUS data for the same year. A comparison of the 90th and the 10th wage decile, however, shows an almost identical differential. In the empirical analysis below we report only estimates from samples where we have excluded the top and the bottom percentile. There

⁸ For a description, see Klevmarken and Olofsson (1993).

is also some evidence that self reported schooling levels in the labor force surveys tend to overstate actual schooling. On the whole, however, we believe that the AKU data should say something about changes over time in the wage structure, even if one should be careful in interpreting the magnitude of various wage differentials using these data.

The estimated relative wages of youths are set out in Table 5. Since the earlier HUS teenage estimates are based on 18-19 year olds, we report AKU estimates for both 16-19 and 18-19 year olds. The teenage relative wages tend to vary across years, but there is no clear change between 1991 and 1994. The relative wages of young adults (20-24 years) are stable around 80 percent. The overall impression is that the results do not indicate any relative wage adjustments for potentially disadvantaged youths during the major slump in the early 1990s.

4. Labor Market Programs and Youth Employment: Crowding In or Crowding Out?

In the previous section, we saw that much of the rise in non-employment among youth is accounted for by an increase in participation in active labor market policy programs (ALMPs).

This raises a question about the effects of ALMPs on regular employment. This is the main theme of the present section. We begin by giving a very brief background on Swedish ALMPs in general and programs targeted at youths in particular, as well as some figures describing the volume of the programs. We then present some new evidence on the effects of ALMPs targeted at youths on regular youth employment.

Over the years since the 1950s, when the foundations of modern Swedish ALMPs were laid down, a large number of different measures have been used. The programs are financed by the central government and implemented by the central Labor Market Board and its regional bodies. Apart from the public employment service, Swedish ALMPs can be broadly classified into employment creation, training and mobility enhancing measures⁹. The two principal programs that have been employed over the whole period since the 1950s are temporary public sector jobs, called relief work, and labor market training. During the first half of the 1980s, they were supplemented by a number of new programs, one of which was explicitly targeted at youth. In the wake of the rapidly growing unemployment in the early 1990s, participation in many programs (the most notable exception being relief work¹⁰) has grown considerably and a number of new measures have been introduced.

Before 1984, the dominant measure for youths in terms of participation was relief work (see Table 6). Since their introduction in 1984 in the form of "youth teams", which provided teenagers with half-time employment and encouraging job seeking, special youth measures have taken a number of forms. After a few years, youth teams were succeeded by "job introduction" schemes, providing work experience for teenagers. As is evident from Table 6, these programs had a rather modest volume. In 1992, a form called youth practice was introduced at the same time as the volume was increased rapidly.

⁹ Since the volumes of mobility enhancing measures have been very modest since the 1960s and since displacement hardly is an issue related to these programs, we will not discuss them here

¹⁰ This is a notable exception, as relief work traditionally has been the prime measure to deal with cyclical swings in the labor market.

Table 6 Youth participation in labor market programs 1978-93

year	Relief work	Labor market training	Temporary replacement scheme	Job intro- duction projects	Youth measures	Total
1978	28584	18000				46584
1979	29431	19631				49062
1980	12581	15689				28270
1981	12527	11071				23598
1982	30418	12298				42716
1983	38260	12914				51174
1984	19310	13123			17743	50176
1985	7891	11977			30542	50410
1986	6423	12030			24473	42926
1987	5019	12465			17869	35353
1988	3668	14988			10096	28752
1989	2189	11842			4487	18518
1990	1598	10236			2959	14793
1991	2265	17439	762		9617	30083
1992	2369	25862	3805		29738	61774
1993	238	11580	3296	4751	58330	78195

Source: Skedinger (1995).

Youth practice was targeted at youths below age 25. The objective was to provide the participants with practice and professional experience. The introduction of this measure was accompanied by instructions aiming at minimizing displacement (participants should not replace ordinary recruits; the measure was to be seen as a "measure of last resort"). The employer received free labor, whereas the participant received a grant. The normal duration was six months. A final thing to

notice about the program is that it, in contrast to previous measures, primarily is directed to the private sector.

The number of studies dealing with displacement effects of Swedish ALMPs is small, and the number of those explicitly dealing with youth measures even smaller. The main thrust of these studies is that the displacement effect of job creation programs is significant, estimates ranging between 40 per cent and more than 100 per cent.¹¹ The results of the two studies explicitly treating youth measures are no exceptions.

Skedinger (1995) uses quarterly data for the period 1970:3 to 1991:4 to estimate a VAR including youth (18-24 years old) participation in labor market programs and youth employment. The derived impulse-response function implies more than 100 per cent crowding out during the first quarter and significant crowding out for two quarters. Skedinger's results have been questioned by, i.a., Holmlund (1995), who shows that a reasonable reformulation of the VAR gives an estimated displacement of around 40 per cent, rather than above 100 per cent. Still, this is significant crowding out. Forslund (1996) analyzes a panel of the Swedish municipalities for the period 1990-94. His estimates indicate that youth programs crowd out 95 per cent of total employment in the short run and about 75 per cent in the long run.

To throw more light on the effects of youth measures on regular youth employment, we use the data set constructed by Forslund (1996) to estimate a model of the demand for youth labor. The

¹¹ The studies include Gramlich and Ysander (1981), Forslund and Krueger (1997), Calmfors and Skedinger (1995), Ohlsson (1995) and Forslund (1996).

dependent variable is the employment to population share of youths aged 18 -24. In addition to time dummies, the right-hand side variables include the lagged dependent variable to take care of sluggish adjustment, the adult employment rate to control for "aggregate" employment shocks, an index for municipality-specific labor demand for youth *demand*, the (average annual) labor income of youth as a proxy for the youth wage rate. We also include the participation rate in youth measures, which is the fraction of the population, age 18-24, that is enrolled in a youth program. Finally, we include the youth share of the population in the age interval 18-65 to control for relative supply effects to the extent that these are imprecisely captured by the youth income variable. All variables are available for all Swedish municipalities for the years 1990-94.

Most variables are straightforward, but the demand variable warrants some explanation. Time dummies are used in the estimations to control for aggregate demand shifts, but to purge the estimates of spurious correlation between municipality employment and youth programs, we want to control for municipality-specific shifts in the demand for youths. The variable is constructed in the following way: the industry distribution of youth employment by municipality in 1990 is used to generate municipality-specific weights. The demand index is constructed by applying these weights to the aggregate employment development in each of about 60 industries and dividing by the number of youths in each of the years.

The model is estimated in fixed-effect form. The presence of the lagged dependent variable as well as measurement errors and simultaneity problems caution against OLS estimation. Thus, in addition to estimating the model by OLS on within-groups transformed data, we have used the IV

estimator of Arellano and Bond (1992) implemented in the OX program DPD (Arellano, Bond and Doornik, 1997).

The major simultaneity problem in this study, as well as in other studies of displacement, is related to the reasonable hypothesis that programs are adjusted in response to the labor market situation. A negative correlation between youth employment and youth program participation, thus, may as well reflect this policy reaction as crowding out. Instrumenting is one way to deal with this problem. Another way that we have used is related to the dating of the variables. Employment is measured in November each year, whereas program participation is measured as a twelve-month average preceding November.

Another reason to introduce instruments is the presence of the adult employment rate in the equation. To the extent that both youth and adult employment are driven by common shocks, this will introduce bias into OLS estimates. The choice of instruments for the adult employment rate is based on the estimates in Forslund (1996).¹² The main instrument for the youth program variable in addition to its own lag is the lagged unemployment rate, as it is known that the allocation of resources to labor market programs is based on the past unemployment history of a region.

The sample means of the data are presented in Table 7 and the preferred estimated models are presented in Table 8. Looking at the data in Table 7, some tendencies are worth noting. First, the fall in youth employment is dramatic: the youth employment rate falls from just below 75 per cent in 1990 to around 45 per cent in 1993 and 1994. This fall is much more pronounced than the

corresponding fall in the adult employment rate. Second, the fraction of youths in youth programs rises drastically from below half a per cent in 1990 to above eight per cent in 1993 and 1994.

Table 7 Sample means of the variables in the estimated model 1990-1994

Variable	1990	1991	1992	1993	1994
youth income	89200	93400	97700	99100	97000
youth employment rate	.749	.670	.537	.434	.462
adult employment rate ^a	.649	.626	.598	.558	.562
demand	5.49	5.34	5.09	4.78	4.96
youth share of population ^b	.155	.151	.148	.145	.142
youth programs	.004	.013	.032	.082	.083

^a Number of employed over age 24 relative to population over age 24.

^b Population aged 18-24 relative to population aged 18-65.

¹² See the note to Table 8 for a list of all instruments used in the GMM estimations.

Table 8 Estimated models of youth employment

	Model 1: OLS within groups estimates of the basic dynamic model	Model 2: GMM estimates of the basic dynamic model	Model 3: Alternative GMM estimates of the dynamic model	Model 4: GMM estimates of the static model
lagged dep. variable	0.482 (14.75)	0.001 (0.01)	-0.032 (-0.30)	
demand index	0.218 (2.18)	0.197 (0.59)		
adult employment rate	1.658 (13.66)	2.44 (7.86)	2.59 (6.25)	2.24 (6.50)
youth income	-0.103 (-1.573)	-0.186 (-0.90)		
youth programs	-0.006 (-1.71)	-0.057 (-5.05)	-0.056 (-5.44)	-0.079 (-4.76)
youth population share	-0.156 (-1.82)	-0.453 (-1.96)	-0.537 (-3.07)	-0.562 (-2.88)
$\hat{\sigma}$ (levels)	0.046	0.045	0.045	0.049

Note: The number of municipalities is 284. The estimation period is 1991-94 for models 1 and 4; 1992-94 for models 2 and 3. Time dummies are used in all models to control for aggregate variables. The numbers in the brackets are t-statistics. All variables are in natural logarithms. The instruments used are the lags of: the dependent variable; the demand index; the youth employment share; the unemployment rate (by municipality); the population share of elderly (above 65); the population share of kids (below 18); average incomes; youth incomes; employment creating labor market programs (excluding youth programs); retraining programs; demand index for total employment. The OLS standard errors are two-step, heteroscedasticity consistent estimates. All GMM models pass the usual tests: absence of second-order serial correlation and a Sargan test for instrument validity. The reported t-values in the GMM estimations are based on the second-step standard errors, which are known from Monte Carlo studies to be biased downwards for a number of DGPs, see Bergström (1997).

The estimated models¹³ pass specification tests at conventional levels¹⁴ and the signs of the point estimates are the expected ones (with the exception of the negative coefficient on the lagged dependent variable in *Model 3*). Thus, we find an insignificant negative effect of youth income (which proxies the youth wage rate), an insignificant positive effect of municipality demand, a negative effect of the youth population share, and, most importantly for our present purposes, a significant negative effect of youth programs on relative youth employment. It is also instructive to note that the estimates of the elasticity of the youth employment rate with respect to the adult employment rate fall between a bit below 2 (the OLS estimate) and just above 2.5, thus confirming that youth employment is indeed more volatile than the employment of adults.

Leaving the OLS estimates aside, the reported short-run elasticities of youth employment with respect to youth programs fall between -.056 and -.079 and seem rather robust to at least small changes in model specification (compare models 2, 3 and 4). Noting that the point estimate effect of the lagged variable is very close to zero, implying rapid adjustment, the long-run effects virtually coincide with their short-run counterparts.¹⁵ A change in program participation from, say, 3 per cent to 9 per cent¹⁶ would then be expected to drive down youth employment by between 6.2 and 8.7 per cent (taking the two extreme estimates of the elasticity), or between 3.5

¹³ With the exception of the OLS within-groups model, where, in addition to all possible simultaneity and other reasons to believe in biased estimates, the residuals are strongly serially correlated.

¹⁴ The Sargan test concerns instrument validity and basically tests for correlations between instruments and estimated residuals. The estimator relies on absence of first-order serial correlation in the residuals of the model in levels form, which translates into absence of second-order serial correlation in the estimated residuals, as the model is estimated on first-difference form.

¹⁵ The estimate of long-run crowding out derived from model 2, evaluated at sample means, is 76 percent.

¹⁶ These figures would be in the neighborhood of the actual figures in Table 8, although they actually understate the change between the mid 1980s and the mid 1990s.

and 4.9 percentage points. Thus, the estimates provide evidence for the hypothesis that youth measures may actually have provided a significant contribution to the fall in youth employment between the mid 1980s and the mid 1990s.

Looking at the development in the sample, the fall in the youth employment rate between 1990 and 1994 is 28.7 percentage points. The estimates, taken at face value, ascribe between 12.5 and 17.7 of these percentage points, or around half of the fall, to the expansion of youth programs.

5. Concluding Remarks

We have taken a look at the labor market experience of Swedish youths during the depression of the 1990s and made some comparisons with youth employment and unemployment during earlier decades. During the 1970s and the 1980s there is not much evidence of deteriorating labor market performance among Swedish youths, despite sharply increasing youth relative wages (particularly for teenagers). There is no obvious explanation for the lack of "action" in employment despite the marked pay compression. We have considered the role of the public sector as an employer of last resort for disadvantaged youths. The support for this hypothesis is not overwhelming, however.

The slump in the 1990s has been associated with dramatic increases in youth unemployment and youth participation in active labor market programs. The impact on unemployment rates by age and education has been roughly proportional, however; unemployment rates among the young and the less skilled have increased most in absolute terms, but the relative increases have been similar across age and education groups. The evolution of employment and unemployment does not offer much ground for the popular hypothesis that the recent rise in unemployment is driven by large and pervasive shifts in the demand for

labor by skill attributable to technological innovation. Wage differentials have been roughly stable during the slump, which also cautions against interpretations in terms of adverse labor demand shifts against the young and the less skilled.

The employment crisis has been met by an unprecedented increase in active labor market programs, in large part targeted at unemployed youths. There is a risk that these programs may crowd out regular youth employment, a hypothesis that is supported in our empirical investigation of regular youth employment in Swedish municipalities. There are of course potential long run benefits from participation in active labor market programs relative to open unemployment, although these have been difficult to confirm in the existing evaluation studies (Forslund and Krueger 1995). There is however an obvious risk that the exceptional volumes of programs in the 1990s have put them into the region with decreasing marginal returns. A strategy for viable employment growth must have other ingredients than more of the same active labor market programs.

References

- Arellano M and S Bond (1991), Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations *Review of Economic Studies* 58, 277-297.
- Arellano M, S Bond and J Doornik (1997), Dynamic Panel Data estimation using DPD for Ox. Mimeo, Oxford University.
- Bergström P (1997), On Bootstrap Standard Errors in Dynamic Panel Data Models. Working Paper 1997:23, Department of Economics, Uppsala University.
- Blomskog S (1997), Long-Run Persistence Effects Arising from Unstable Youth Labour Market Careers. The Case of Sweden, in S Blomskog, *Essays on the Functioning of the Swedish Labour Market*, PhD Dissertation, Swedish Institute for Social Research, Stockholm University.
- Blomskog S and L Schröder (1997), Labour Market Entry, Vocational Training, and Mobility in the Swedish Young Work Force 1950-1991, in S Blomskog, *Essays on the Functioning of the Swedish Labour Market*, PhD Dissertation, Swedish Institute for Social Research, Stockholm University.
- Calmfors L and P Skedinger (1995), Does Active Labour Market Policy Increase Employment? Theoretical Considerations and Some Empirical Evidence from Sweden, *Oxford Review of Economic Policy* 11, 91-108.
- Card D, F Kramarz and T Lemieux (1995), Changes in the Relative Structure of Wages and Employment: A Comparison of the United States, Canada, and France, Industrial Relations Section, Princeton University, Working Paper # 355.
- Edin P-A and B Holmlund (1994), *Arbetslösheten och arbetsmarknadens funktionssätt* (Unemployment and the Labor Market Performance), Report to the Medium Term Survey 1994, Ministry of Finance.
- Edin P-A and B Holmlund (1995a), The Swedish Wage Structure: The Rise and Fall of Solidarity Wage Policy?, in R Freeman and L Katz (eds), *Differences and Changes in Wage Structures*, University of Chicago Press.
- Edin P-A and B Holmlund (1995b), Unemployment and Wage Inequality in Sweden, Department of Economics, Uppsala University (mimeo).
- Edin P-A and R Topel (1997), Wage Policy and Restructuring: The Swedish Labor Market Since 1960, in R Freeman, R Topel and B Swedenborg (eds), *The Welfare State in Transition*, University of Chicago Press.
- Forslund A (1996), *Direkta undanträngningseffekter av arbetsmarknadspolitiska åtgärder* (Direct Displacement Effects of Labor Market Policy Measures), Report to the Parliamentary Auditors.

Forslund A and A Krueger (1997), An Evaluation of the Active Swedish Labor Market Policy: New and Received Wisdom, in R Freeman, R Topel and B Swedenborg (eds), *The Welfare State in Transition*, University of Chicago Press.

Freeman R and L Katz (eds), (1995), *Differences and Changes in Wage Structures*, University of Chicago Press.

Gramlich E and B-C Ysander (1981), Relief Work and Grant Displacement in Sweden, in G Eliasson, B Holmlund and F Stafford (eds), *Studies in Labor Market Behavior*, IUI.

Hibbs D (1990), Wage Compression Under Solidarity Bargaining in Sweden, Research Report No 30, Trade Union Institute for Economic Research (FIEF), Stockholm.

Holmlund B (1995), Comments on Per Skedinger: Employment policies and Displacement in the Youth Labour Market, *Swedish Economic Policy Review* 2, 173-179.

Juhn C, K Murphy and R Topel (1991), Why Has the Natural Rate of Unemployment Increased over Time?, *Brookings Papers on Economic Activity*, No 2, 75-142.

Juhn C, K Murphy and B Pierce (1993), Wage Inequality and the Rise in Returns to Skill, *Journal of Political Economy* 101, 410-442.

Klevmarken A and P Olovsson (1993), *Household Market and Nonmarket Activities*, Industriens Utredningsinstitut.

Nickell S and B Bell (1994), The Collapse in Demand for the Unskilled and Unemployment across the OECD, *Oxford Review of Economic Policy* 11, 40-62.

Ohlsson H (1992), Job Creation Measures as Activist Fiscal Policy - an Empirical Analysis of Policy Reaction Behavior, *European Journal of Political Economy* 8, 264-280.

Ohlsson H (1995), Labor Market Policy, Unemployment and Wages - A VAR-Model for Sweden 1969-1990, Department of Economics, Uppsala University (mimeo).

SCB (1987), Ungdomars verksamhet efter grundskolan (Youth's activities after compulsory school), U44 SM8701, Statistics Sweden.

SCB (1996), Ungdomars verksamhet sju år efter grundskolan (Youth's activities seven years after compulsory school), U82 SM9601, Statistics Sweden.

Schröder L (1995), *Ungdomars etablering på arbetsmarknaden - från femtiotal till nittiotal* (The labor market entry of youths - from the 1950s to the 1990s), EFA, Ministry of Labor, Stockholm.

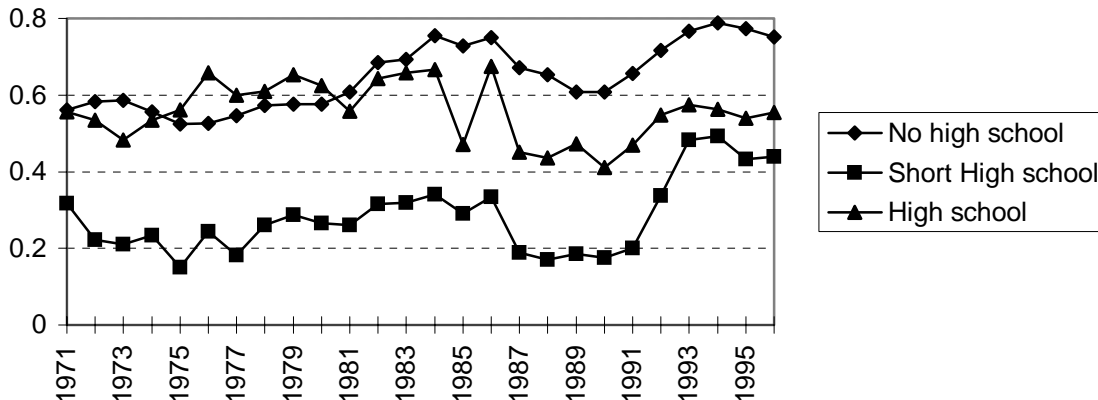
Skedinger P (1995), Employment Policies and Displacement in the Youth Labour Market, *Swedish Economic Policy Review* 2, 135-171.

Thoursie A (1996), Post-Essen Seminar in Sweden: Background Material for 'Engaging with the Essen Themes', Working Paper 6/1996, Swedish Institute for Social Research, Stockholm University.

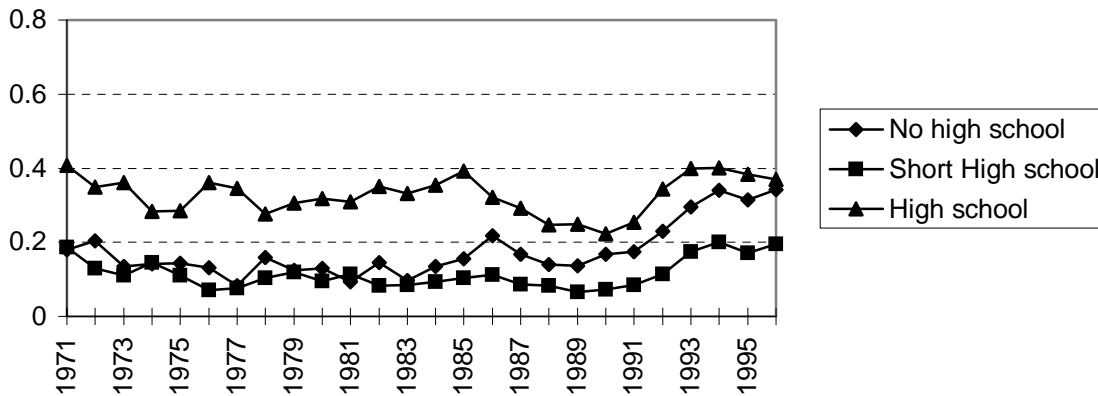
Wadensjö E (1996), Den mörka bilden - invandrarna på 1990-talets svenska arbetsmarknad (The Dark Picture - Immigrants in the Swedish Labor Market in the 1990s), in *Invandrare på arbetsmarknaden*, Rådet för arbetslivsforskning.

Figure A1 Non-Participation rates for males with no high school, short high school or long high school, Labor Force Surveys

A. 16-19 years



B. 20-24 years



C. 35-44 years

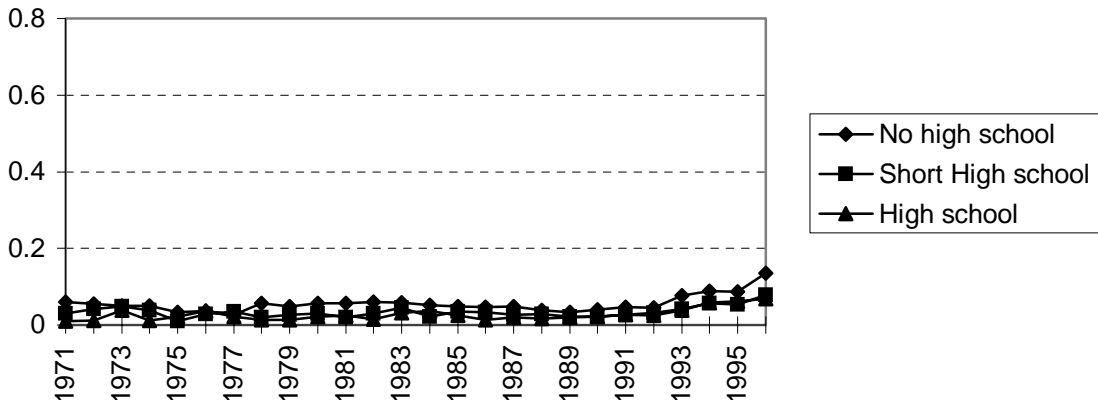
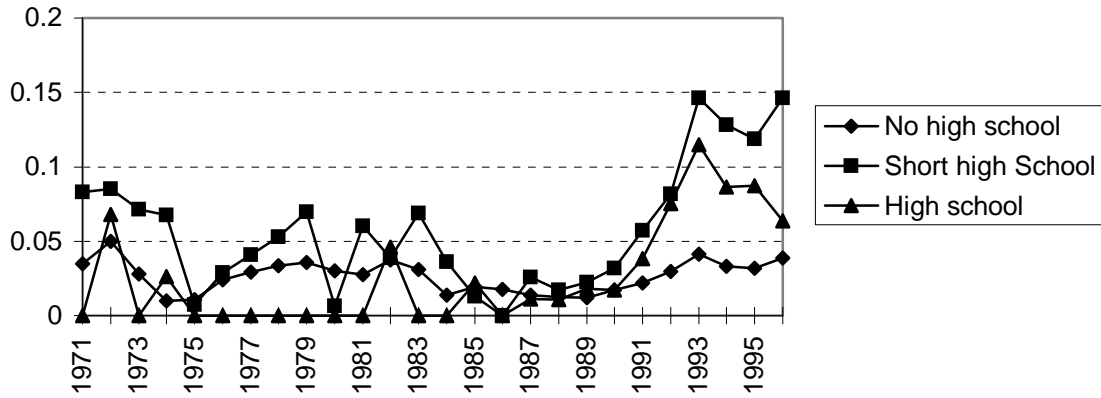
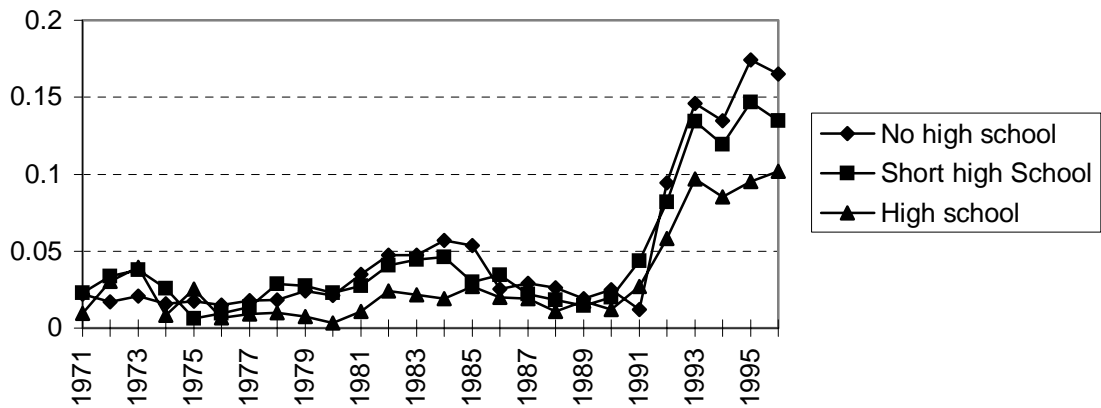


Figure A2 Unemployment-to-population rates for males with no high school, short high school or long high school, Labor Force Surveys

A. 16-19 years



B. 20-24 years



C. 35-44 years

