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The Effect of Military Base Closures on Young Adults

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Abstract: This study examines the response among young adults to the closure of a large local employer. By using military base closures in Sweden, I find that men experience lower earnings and enroll in tertiary education. This is driven by low-ability men who choose short-term enrollment at nearby colleges and universities. For women, the closures have a positive impact after some years, with increases in both earnings and employment rates, suggesting that closing down a male-dominated employer can benefit the female labor supply.

Keywords: local economic downturn, plant closure, defense cutback, tertiary education, labor market entrants
JEL classification: H56, I23, J24

1. Introduction

A fall in local labor demand, such as a closure of a large employer, can have serious consequences for the local community including greater unemployment rates, a smaller labor force, and lower incomes (Topel, 1986; Blanchard & Katz, 1992; Foote et al., 2019; Notowidigdo, 2020). But these consequences may not have a uniformly negative impact on all individuals in the local community. For example, young adults, who have not yet established strong ties to their hometown's labor market, might avoid unemployment by relocating or returning to school. As a result, while the closure may be challenging for the community as a whole, some individuals might mitigate the negative effects.

This study examines the effects of military base closures in Sweden at the turn of the millennium, focusing on individuals who are 18 years old and about to finish upper secondary school when a nearby closure is announced. When graduating from upper secondary school, young adults are in most cases deciding whether to find a job or push their labor market entry by pursuing further education. The aim of the study is to examine how the closure influences this decision and its consequences on labor market outcomes.

I take a longitudinal approach by following how the 18-year-olds cope with the closures up to age 24. As closures occurred abruptly and relatively unpredictably, it provides suitable control groups: they are compared to individuals from municipalities with a military base that remained open but also with older individuals from the same municipality. By using these two control groups, both cohort and municipality specific differences are taken into account.

The findings show no immediate effect on employment rates. For men, who are overrepresented among the military personnel, the closures lead to a decline in income and a shift towards more tertiary education. These effects are particularly evident among low-ability men. The increase in education occurs at the extensive margin, with more individuals completing a single semester after the closure, rather than an increase at the intensive margin.

Additionally, the increase is observed only among men whose home municipalities are near a tertiary education institution, suggesting that proximity to such institutions is important for enrollment as a mitigating alternative. For women, the effects of base closures are entirely different. After some years, they experience higher incomes and employment rates, implying that closing a male-dominated employer can benefit the female labor market.

1.1. Young adults and their relation to the labor market condition

The first years in the labor market are formative for the rest of the job career (Topel & Ward, 1992; Card, 1999). Based on this, it is no surprise that long-term outcomes are sensitive to the condition of the labor market when entering it. For example, Kahn (2010), Oreopoulos et al. (2012), and Wachter (2020) estimate negative impacts of labor market entry during economic recessions up to 15 years across various labor market outcomes.

Prior studies show that labor market conditions are particularly important in shaping young adults' decisions to pursue further education. Theoretically, the relation between labor market conditions and education investments is ambiguous as an economic downturn reduces the opportunity cost of education, stimulating more education, but on the other hand also lowers the return to education, discouraging education. A growing consensus is emerging that the former effect outweighs the latter meaning that bad labor market conditions lead to more education. This has been shown in several studies in the US where national recessions increase tertiary enrollment (Betts & McFarland, 1995; Dellas & Sakellaris, 2003; Barrow & Davis, 2012; Hershbein, 2012; Méndez & Sepúlveda, 2012) and more recent studies also show that recessions alter the choice of specific education fields (Liu et al., 2019; Ersoy, 2020; Blom et al., 2021).

While some of the mentioned studies exploit state variations in exposure to national recessions, they do not capture local labor market variations. A nationwide recession may not necessarily be converted into a local dip and a local downturn does not imply that other parts

of the country or state are experiencing the same. During national recessions, individuals who enter the labor market often experience less flexibility in making career and residential decisions, which in turn has an impact on their long-term earning potential (Wachter, 2020). However, this inflexibility is less pronounced when the economic downturn is limited to a specific location since then the role of migration is a more useful tool for affected individuals. Also, local downturns are often concentrated to a specific sector, making reeducation more worthwhile as the return to schooling is less dependent on sector-specific shocks.

Several studies have examined how variations in local labor market conditions affect educational decisions on an aggregated level. Black et al. (2005) show that low-skilled individuals from coal-intensive counties in the US benefit from booms in the coal market and respond by leaving school earlier. Similar results are found from oil price shocks (Emery et al., 2012; Cascio & Narayan, 2022; Kovalenko, 2023). Charles et al. (2018) exploit local variations in housing booms and find that a boom, which improves labor market opportunities, reduces college enrollment. Finally, plenty of studies show that higher local unemployment rates and mass layoffs increase college enrollment (Rees & Mocan, 1997; Rice, 1999; Clark, 2011; Hillman & Orians, 2013; Reiling & Strøm, 2015; Alessandrini, 2018; Foote & Grosz, 2020).[1] Altogether, when the opportunity cost of education falls, either through a national or a local economic downturn, tertiary education investment usually increases.[2]

[1] In some recent work focus is on displaced workers, using individual data rather than aggregated levels, and find an increase in tertiary enrollment after being laid-off (Minaya et al., 2023; Salvanes et al., 2024).

[2] For developing countries, the evidence is more mixed where some find positive relation between economic downturn and education investments (Atkin, 2016; Li & Sekhri, 2020; Saad & Fallah, 2020; Shah & Steinberg, 2021) while others the opposite (Adukia et al., 2020; Heath & Mobarak, 2015; Jensen, 2012; Shah & Steinberg, 2017). One explanation for the contrasting findings could be that the return to schooling in developing countries is more dependent on local labor market changes compared to developed countries. Another potential reason is that studies in developed countries exploit market-related events, such as oil price changes, whereas the studies from developing countries exploit public interventions such as infrastructure programs.

The current study deviates from previous research in three ways. First, I use a framework outside North America. Sweden differs significantly in labor market and higher education institutions, for example with tuition-free tertiary education and generous social transfers which both could mitigate negative effects of local closures.[3] Second, I focus on local shocks, whereas much of the existing literature examines the impact of macroeconomic or regional shocks. Local shocks, however, have more direct and isolated effects. Third, I focus on 18-year-olds rather than aggregated levels that include individuals with several years of labor market experience and often having employment safety nets. Young adults have a lack of family responsibilities that reduces mobility costs, allowing them greater flexibility in responding to local labor market changes. Moreover, the decision to pursue tertiary education and select a field of study is typically made within the first few years after graduating from upper secondary school, making this a critical period for examining educational and career choices.[4]

1.2. The military cutbacks in Sweden

In the late 1990s, Sweden underwent a substantial reduction in its military capabilities. The aim was to adapt to the post-Cold War security environment and reduce military expenditures. This led to a focus on non-military defense strategies, such as diplomacy, international collaboration, and civil defense, alongside a downsizing of the armed forces.

The strategic shift included reductions in the number of active troops and conscripts, as well as the closure of multiple military bases. Between 1995 and 2009, defense spending as a share of total GDP decreased from 2.2 to 1.2 percent and around 40 percent of officers and civilian employees were laid off (Hedin, 2011). A defining phase occurred from 1998 to 2005

[3] Of the previously mentioned studies, only three are set in a European context; Norway (Reiling & Strøm, 2015) and the UK (Clark, 2011; Rice, 1999).
[4] In Sweden, a 20-year-old is twice as likely to move than a 29-year-old (Kulu et al., 2018, tab. 1) and 40% of everyone enrolled in higher education are younger than 24 years (Stenberg, 2012, fig. 4).

when more than ten bases were closed – equivalent to almost one-third of the total bases. To predict the specific bases that would be closed was difficult as multiple factors were taken into account: geographical considerations, cost efficiency, and conflicting interests between local and national parties intensified by the Social Democratic government's lack of a political majority at the time. Even bases with recent investments or strategic significance were not immune to closures. This contributed to multiple modifications throughout the parliamentary process leading to uncertainty and unpredictability (Hedin, 2011; Dahlberg et al., 2024).

The closed military bases employed between 250 and 1,600 people, including both military personnel and civilians, which on average corresponded to four percent of total employment in the affected municipalities (Jakobsson, 2010).[5] Closing a base does not only affect these individuals but also other parts of the local economy, such as subcontractors and retailers. In addition, a closure stops the commuting of young people to the base in order to do their military service which also can impede the local economy.

1.3. Prior research on military base closures

By studying aggregated municipality-level outcomes in Sweden, Andersson et al. (2007) find a small negative effect on average income growth in the first three years after a military base closure, but this effect disappears in later years. They suggest resilience among the local population and argue that there is not a clear need for public compensation for the affected municipalities. Outside Sweden, the pattern is similar: initial small negative effects which disappear after some time both in the US (Krizan, 1998; Hooker & Knetter, 2001; Poppert & Herzog Jr, 2003; Lee, 2018) and in Germany (Paloyo et al., 2010). These studies identify three potential explanations for the modest effects: i) small spillover effects, ii) local

[5] After a closure almost all military employment in the municipality disappears. On average, two years before a closure, 4.1 percent of the municipality's total employment is employed by the Swedish Armed Forces. Two years after, this number drops to 0.4 percent. See Table A2 for more details.

communities are able to make use of the resources set free from the closures, and iii) individuals succeed in their labor market responses. By focusing on community-level outcomes, prior studies address the first two. But to fully understand the third channel, individuals' adaptability, attention must shift to individual-level responses. Two Swedish studies partially address this by following the displaced military workers (Jakobsson, 2010; Dahlberg et al., 2024), but it still leave gaps in understanding how young adults, who are particular sensitive to local labor market disruptions, adapt to a base closure.

2. Data and empirical specification

2.1. Municipalities

In the mid-90s, military bases were located in almost 40 of Sweden's 290 municipalities. Out of these, I focus on ten that were exposed to closure in a year between 1998 and 2005, and nine that remained unaffected. These are referred to *exposed municipalities* and *control municipalities*, presented in Figure 1 and more detailed in Table A2. I exclude municipalities with a military base where the military employment level in 1998 was below one percent of the municipality's total employment[6], having a partial closure[7], or getting a new public agency as compensation for the closure[8].

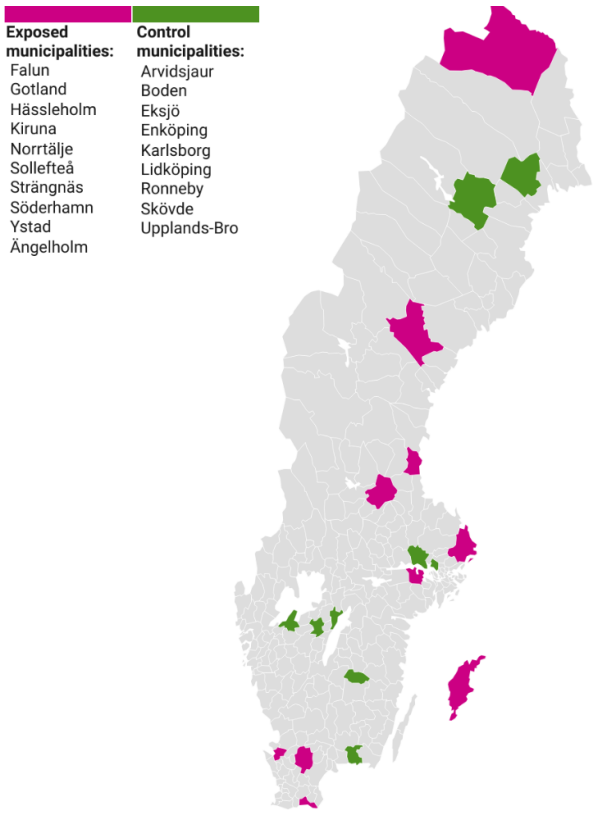


Figure 1. Exposed and control municipalities.

[6] Borås, Gävle, Göteborg, Lund, Stockholm, Södertälje, Umeå, Uppsala, and Örebro.
[7] Halmstad, Haninge, Härnösand, Karlskrona, Kristianstad, Linköping, Luleå, and Vaxholm.
[8] Karlstad, Kristinehamn, and Östersund.

2.2. Individuals

The dataset includes individuals born in Sweden between 1974 and 1987 who at the age of 18 resided in an exposed or control municipality. This adds up to around 27 thousand individuals who I follow from age 17 through the *Swedish Longitudinal Integrated Database for Health Insurance and Labour Market Studies* from *Statistics Sweden*. All individuals are assigned a *home municipality* which corresponds with where one lives at the age of 18. Summary statistics for the individuals are presented in Table A4.

Treated individuals consist of the cohorts experiencing a closure of their home military base in the year they turn 18.[9] As the closures take place in a year between 1998 and 2005, the treated cohorts go from 1980 to 1987 depending on the home municipality. For example, the military base in Sollefteå municipality was closed in 2000 implying that treated individuals from Sollefteå consist of everyone born in 1982 and resided in Sollefteå in the year 2000. The control individuals belong to the same cohorts as the treated individuals, but their home municipality is one of the nine control municipalities.

Since 18-year-olds do not have pre-periods of labor market outcomes or tertiary education decisions, assessing parallel pre-trends is not possible making the standard *difference-in-differences* approach implausible. Instead, older cohorts from both exposed and control municipalities are also used as control individuals. The older cohorts are 24 years old, rather than 18, at the year of the closure. Following the previous example, the older control individuals from Sollefteå consist of everyone born in 1976 and resided in Sollefteå in 1994 which is the year they turned 18. This enables an approach similar to difference-in-differences, but instead of exploiting the difference compared to the pre-trend, I use the

[9] In fact, the closure is announced in the year they turn 18. The closing down process lasts for 12 to 18 months from the announcement implying that the closure is, in most cases, completed the year they turn 19 which corresponds with the graduation year from upper secondary school.

difference compared to older cohorts when they were the same age. Both cohort- and municipality-specific differences are then taken into account.

2.3. Econometric specification

For each age from 17 to 24, the outcome variable y_{icm} for individual *i* in cohort *c* with home municipality *m* is determined by the following model:

$$y_{icm} = \beta_0 + \beta_1(closure_m \# young_c) + X_i + \gamma_c + \delta_m + \varepsilon_{icm} \quad (1)$$

where $closure_m$ is a dummy variable indicating whether the home municipality was exposed to a closure and $young_c$ is a dummy variable for being age 18 (= 1) or 24 (= 0) when the closure took place. β_1 is then the coefficient of interest and captures the impact for those being 18 years old when a military base shuts down in their home municipality. X_i includes the covariates gender, foreign background, parental education, and upper secondary school grades. Fixed effects γ_c and δ_m account for cohort and home municipality variations. Year fixed effects are controlled for by running separate regressions for each age with cohort fixed effects γ_c. For the binary outcomes, such as completed one semester, a linear probability model (LPM) is used.[10] The continuous outcomes, such as income, are standardized and inflation-adjusted to 2010 price levels. Standard errors are clustered at the cohort and home municipality level.

2.4. Effect of closures on military-related outcomes

The identification strategy relies on young adults losing a potential employer following a closure. To test this, Figure 3 presents β_1 from equation (1), with military employment, service, and education as outcomes. The overall pattern supports the identification strategy: military base closures result in a weaker attachment to the Swedish armed forces. This is only

[10] Probit regressions are used in Table A9.

true for men since women from the start had already a very weak attachment.[11] At age 23, men are 1.6 percentage points (76 percent) less likely to be military employed. The effect is less evident at age 24, possibly because parts of the control group are experiencing closure at this age, leading to an underestimation of the effect.

By the age of 24, men are 0.5 percentage points (71 percent) less likely to have completed military education. Among the 19 municipalities included in this study, none offer military education, as it is typically carried out in Stockholm. Therefore, the decline cannot be attributed to the loss of local opportunities for military education. Instead, I interpret the decline as a decrease in interest in pursuing a military career because the opportunity to do that in the home municipality is no longer possible.

Military service was mandatory for all men in Sweden from 1901 until 2009. Being called up implied undergoing a selection process that included both mental and physical tests and the outcomes determined whether a recruit was eligible for service. Most recruits enlisted at the age of 19 or 20, serving for a period of seven to 15 months. In my sample almost 50 percent of the men did military service.[12] Given that conscription and the drafting process were meant to be independent of one's place of residence or if it is near a military base, I do not expect significant effects from the closures. However, panels (c) and (d) indicate an initial decline in conscription rates, suggesting that residency mattered, or that individuals themselves could influence the enlistment decision. Potentially, the decline implies that the presence of a nearby military base facilitated immediate enlistment after graduation, whereas the need to relocate for service introduced a cost, causing a delay in enlistment. After the age of 21, men

[11] Figure A8 shows more clearly the gender difference when it comes to military employment and military service. According to Försvarsmakten (2001), 19 percent of the employed at the Swedish Armed Forces were women; 40 percent of the civilians and 3 percent of the officers.

[12] I define military service as having any compensation for participating in military service or civil service lasting longer than 60 days. Hence, it does not imply that the individual actually completes the service.

are slightly, though not significantly, less likely to have done military service which is shown in panel (d).

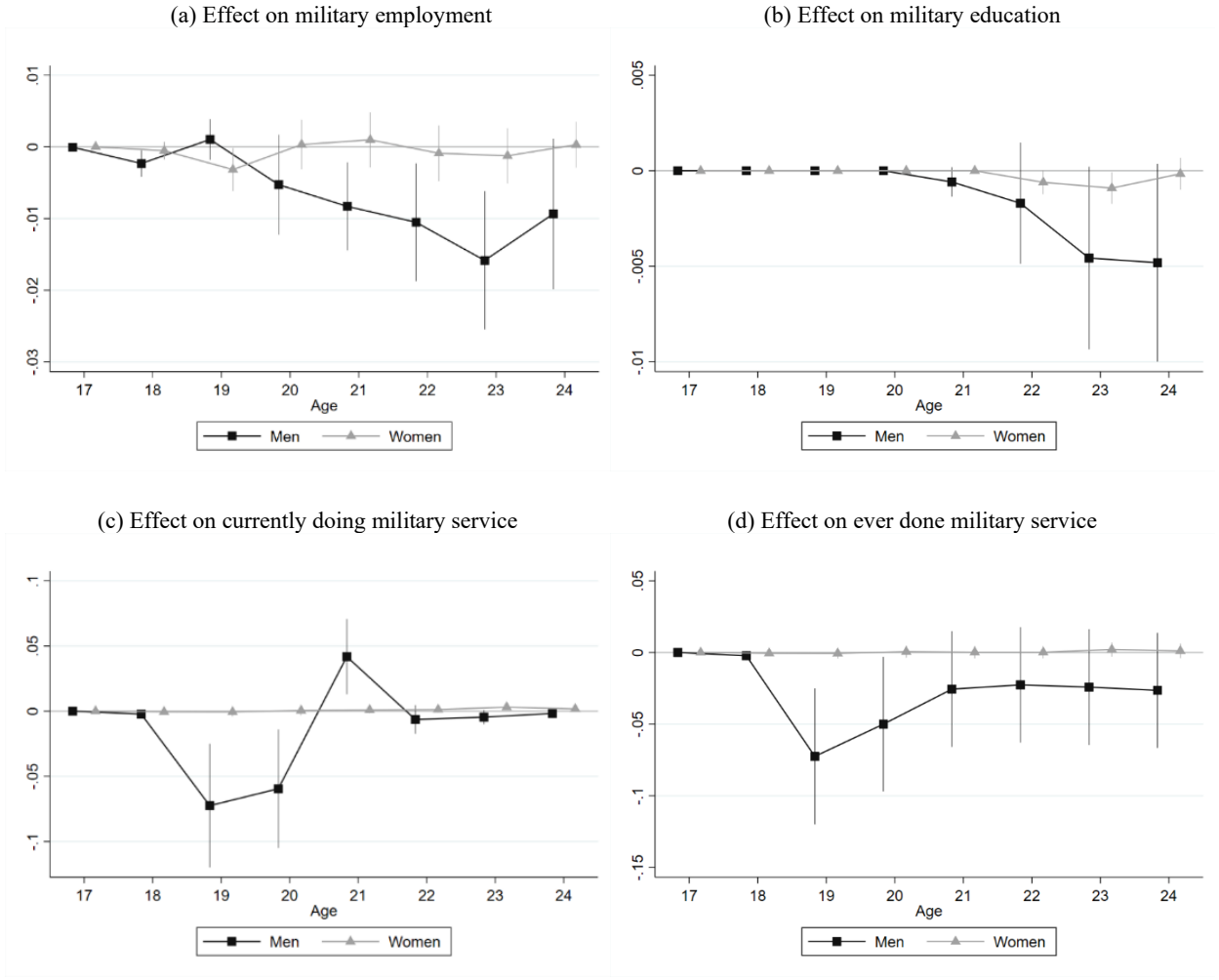


Figure 2. Effect of a nearby base closure at age 18 on military-related outcomes.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. The coefficients represent β_1 from equation (1). In Figure A7, probit regressions are used.

3. Results

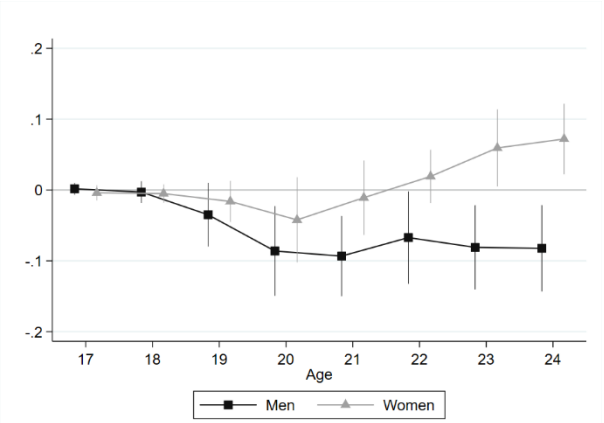
3.1. Women benefit from closures

Figure 3 shows how women, in terms of earnings, benefit from a closure after a few years. The coefficients represent the effect of experiencing a base closure in one's home municipality at age 18, corresponding to β_1 from equation (1).[13] At age 24, women have seven percent of a standard deviation higher yearly disposable income. This translates to SEK 6,200, corresponding to a four percent increase (similar for earned income, see Table A5). Women are also less likely to relocate some years after a closure, defined as not residing in either the home municipality or one that borders it. In addition, at age 24 more women are employed. Together it suggests that the change in the local labor market, in this case a closure of a man-dominated employer, benefits women. But the benefits do not show up instantly, suggesting that the local labor market may need a few years to adjust following the closure.

Labor market outcomes for men are the complete opposite. Income sharply falls, and the employment rate after a few years is lower. At age 24 they experience a decrease in disposable income equivalent to eight percent of a standard deviation or SEK 7,100 per year. More men move away after a closure, suggesting that the local labor market is less attractive when the military base is gone. The effect on relocation drops slightly at the age of 24, which can be attributed to two reasons. First, parts of the control group become exposed to the announcement of closure at age 24 and may react by relocating, which then reduces the effect on the treated individuals.[14] Second, men may move back to their hometowns after completing tertiary education elsewhere (which I explore in the following section).

[13] Several robustness tests are presented in *Appendix: Sensitivity analysis*.
[14] The same pattern occurs at age 22 when using control individuals that are 22 years old, instead of 24, at the time of closure. See Figure A12 for more details.

(a) Effect on disposable income (sd)



(b) Effect on relocation

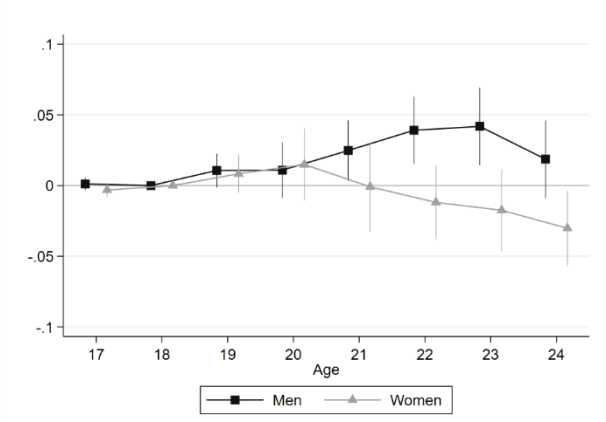


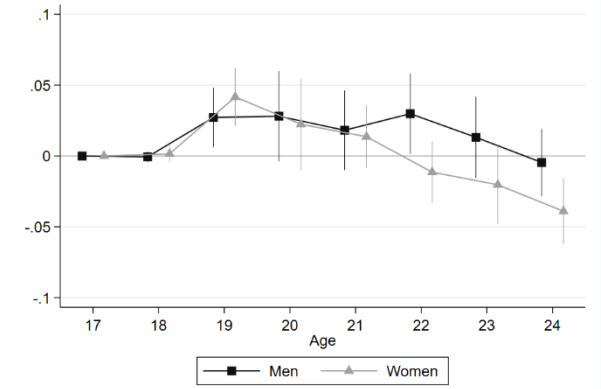
Figure 3. Effect of a nearby base closure at age 18 on disposable income and relocation.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. The coefficients represent β_1 from equation (1).

3.2. More men pursue tertiary education

Figure 4 presents educational outcomes for men and women up to age 24. In the first years after graduating from upper secondary school, more men and women enroll in tertiary education following a closure. For women, the initial increase is particularly strong but the effect fades over time and eventually becomes negative. This suggests that women start their tertiary education earlier following a closure, yet it does not translate to a permanent increase in educational attainment. For men, on the other hand, the increase in enrollment remains positive for a longer period. This pattern is reflected in panel (b) which shows the effect on having one semester completed: at age 24, women are unaffected while men are 3.5 percentage points (9.7 percent) more likely to have completed one semester. This shift is driven by enrollment in STEM and business (see Figure A9).

The observed decrease in disposable income among men can partially be attributed to choosing study over work. However, by age 24, men are not significantly more likely to be enrolled in education, yet they still experience a substantial decline in disposable income. This suggests that the income reduction is driven by lower-paying jobs and reduced employment rates rather than continued education.

(a) Effect on currently enrolled



(b) Effect on completed one semester

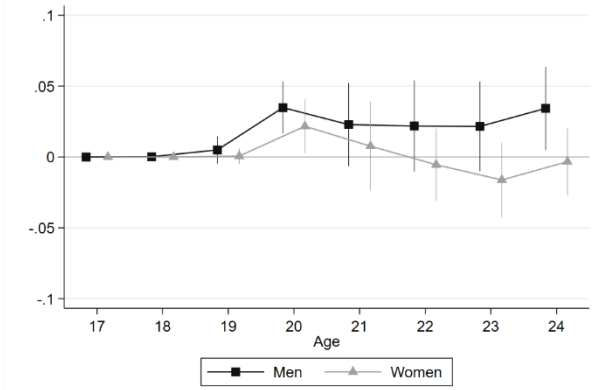


Figure 4. Effect of a nearby base closure at age 18 on education outcomes.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. The coefficients represent β_1 from equation (1)

3.3. Proximity to tertiary education is key

Of the ten municipalities that experienced a closure, one offers tertiary education and five borders a municipality that does. Individuals from these six municipalities are defined as being close to tertiary education. Figure A10 illustrates a map of where tertiary education is located and its relation to military bases. Below, Figure 5 shows that the increase in educational investment, observed earlier, is driven by men having short distances from their hometown to tertiary education. This demonstrates the importance of having nearby education possibilities. More men are also moving to the neighbouring municipality offering tertiary education (see last rows of Table A5), but this effect fades out when reaching age 24.

3.4. The role of ability and SES

Here, I explore how ability, measured by school grades, and socio-economic status (SES), measured by parental education levels, relate to the response to closures. Figure 6 presents the distribution of military employment by grade and parental education quartiles among 24-year-old men with a military base in their home municipality. This provides a general profile of the men who end up working at military bases. The lowest grade quartile is underrepresented

(a) Effect on completed one semester

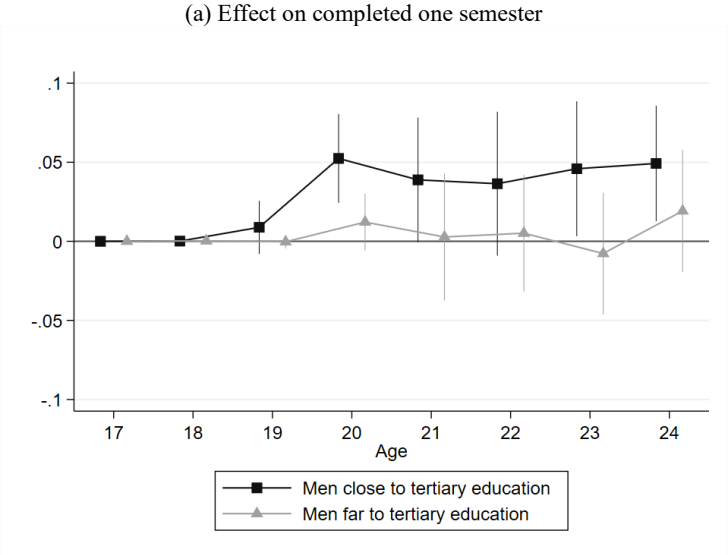


Figure 5. Effect of a nearby base closure at age 18 among men.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. The coefficients represent β_1 from equation (1). *Close to tertiary education* refers to individuals with a home municipality offering tertiary education or borders one that does. *Far to tertiary education* refers to individuals with a home municipality not offering tertiary education nor borders a municipality that does.

among military employees, while there is a strong gradient for parental education, with higher parental education levels being overrepresented.

About five percent of men whose parents have above-median education levels (i.e., in the third and fourth quartiles) work at military bases, compared to less than half that proportion for men with lower parental education. A takeaway is that individuals from higher SES backgrounds would be more affected by the closures, as they lost more potential job opportunities. Likewise, the men with the lowest ability should be less sensitive.

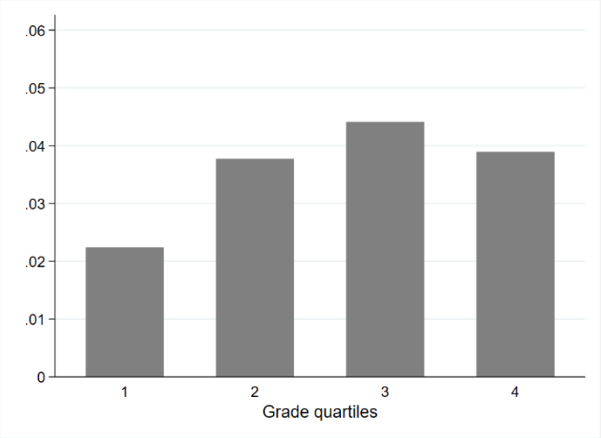
In Table 1 I test this by estimating the effects of a closure and dividing the men based on whether they fall above or below the median in these distributions.[15] Although fewer men with lower ability typically get employed on a military base, they are the worst off in terms of income following a closure. This indicates that spillover effects from a closure affect them more, or that low ability is associated with worse adaptive capabilities to local labor market changes. At the same time, it is the low-ability men who drive the increase in education, even

[15] In Table A6 and Table A7, I present effects on women and including more outcomes.

though almost 30 percent in this group are not eligible for tertiary education. Since low-ability individuals probably have lower returns to schooling, this may explain why men still have lower incomes at age 24, despite having attained some tertiary education and not being enrolled by that age.

Having a high SES is associated with lower incomes and employment rates, especially after a few years. This suggests that their early adult performance is heavily dependent on the presence of the military base in their home municipality. It is possible that parental networks, which can be critical during the transition to adulthood, relied on the presence of the base among high-SES individuals. For women (see Table A6 and Table A7), there are no clear differences between the SES groups. But women with high ability are the ones benefitting from the closures in terms of income and employment rate.

(a) Military employment by grade quartiles



(b) Military employment by parental education quartiles

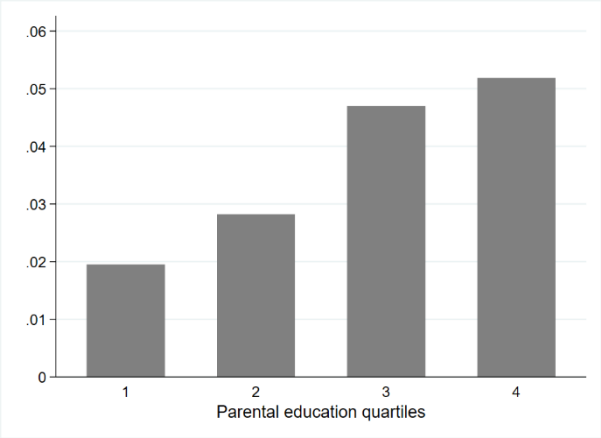


Figure 6. Share of men having military employment by grade and parental education level quartiles.

Notes: Only 24-year-old men are included. The treated individuals, i.e. those who experienced a closure at age 18, are excluded. Grade quartiles refer to grades from upper secondary school and are based on the grade distribution in the year of graduation. Parental education refers to the highest education attained between the parents. Due to the discreteness in parental education levels, the quartiles do not exactly correspond to 25%. The first quartile includes those from none to having some upper secondary school education. The second quartile corresponds to at least one parent having graduated from upper secondary school. The third quartile corresponds to at least one parent having two years of tertiary education. The fourth quartile includes having at least one parent with three or more years of tertiary education.

Table 1. Effect of a nearby base closure at age 18 among men.

Outcomes	Low ability	High ability	Low SES	High SES
One semester completed, age 24 (mean=0.428)	0.069***	0.012	0.041***	0.027
	(0.014)	(0.025)	(0.014)	(0.025)
Disposable income, age 24 (1 sd=88.9k SEK)	-0.109***	-0.055	-0.052	-0.113**
	(0.033)	(0.050)	(0.044)	(0.051)
Cumulative disp. inc., age 19-24 (1 sd=338k SEK)	-0.136***	-0.083*	-0.091**	-0.138***
	(0.040)	(0.042)	(0.043)	(0.049)
Employment, age 24 (mean=0.689)	-0.009	-0.046**	0.007	-0.058***
	(0.017)	(0.023)	(0.021)	(0.020)
Relocated, age 24 (mean=0.275)	0.011	0.037	0.006	0.036*
	(0.016)	(0.024)	(0.018)	(0.021)
# individuals	7,905	5,611	7,093	6,423

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered on the municipality and cohort level. Mean refers to full sample mean at the given age. Standard deviations are based on the full sample from age 19 to 24. The coefficients represent β_1 from equation (1). Low ability is defined as belonging to the bottom 50% of the grade distribution at the time of graduation (i.e., the bottom two quartiles). High ability is defined as belonging to the top 50% of the grade distribution (i.e., the top two quartiles). Low SES means that neither parent has tertiary education, approximately corresponding to the bottom two quartiles of parental education. High SES means that at least one parent has tertiary education, approximately corresponding to the top two quartiles. There is some correlation between the ability and SES groups: 59% of the individuals with high ability do also have high SES. See Table A8 for estimations using the overlaps between the groups.

4. Concluding remarks

By examining the impacts of military base closures in Sweden between 1998 and 2005, this study gives insights into how young adults respond to local labor market disruptions. The average closure implied a four percent drop in the total employment level in just a couple of years. The focus is not on how the local communities coped with this on an aggregated level, nor on the displaced workers, but on those just entering the labor market. Overall, this group is fairly resilient to the closures but with clear gender differences. Women experience higher incomes and employment rates a few years after a closure, suggesting that the shutdown of male-dominated employers like military bases, where only one in five workers are women, creates opportunities that benefit female workers. High-ability women, in particular, succeed in taking advantage of the transformed local labor market. One such way is by capitalizing on resources freed up by the closures, such as converting former barracks into housing, shops, restaurants, and other businesses[16], all of which can offer greater benefits to women than the military bases did.

Given that men are overrepresented at military bases, it is perhaps no surprise that they are less resilient to a closure. They experience significantly lower earnings up to age 24, with the hardest hit groups being low-ability men and those from high SES backgrounds. The latter group is overrepresented at military bases, making their negative outcomes more expected. In contrast, low-ability men are underrepresented at military bases, suggesting that they are less adaptive and more affected by spillover effects from the closures. Taking a different perspective, these results imply that low-ability men with high SES benefit from having a nearby base while high-ability women would be better off without it.

The initial lower incomes among men are not driven by lower employment rates but by lower-paying jobs and enrollment into tertiary education. The educational increase is only

[16] Jakobsson (2010) gives examples of this.

evident for men with their hometowns located near a university or college. This implies that if the educational response to a local labor market disruption is desirable, providing nearby access is crucial. Moreover, the educational shift supports the idea that when the opportunity cost of education falls, here stemming from a local closure, people invest more in education which has been shown in several studies (e.g. Betts & McFarland, 1995; Dellas & Sakellaris, 2003; Méndez & Sepúlveda, 2012; Charles et al., 2018). In a way, education plays the role of an automatic stabilizer for these individuals when their local labor market is disrupted. Changing the field of education can also be a tool to cope with disruptions, and I find an increase in STEM education, often related to leading to more safe occupations, while fewer are pursuing social sciences (see Figure A9).

The increase in education for men does not lead to more attaining bachelor's degrees. Instead, there is a rise in enrollment in short-term programs and single courses, suggesting that the educational shift comes from the extensive margin rather than the intensive margin. In other words, individuals who would have pursued education regardless of whether their base closed do not increase their investment in education after a closure. Rather, it is men, often with lower ability, who would not have pursued any education in the absence of a closure who are now choosing short-term enrollment.

Andersson et al. (2007) proposed community resilience in the Swedish municipalities that were affected by the military base closures. In this paper, I do to some extent attribute that resilience to individual resilience, characterized by labor market entrants enrolling in education rather than accepting unemployment. Alas, men earn less following a closure, but after some years the gains observed among women roughly balance out the lower earnings of men which can explain the minimal aggregated effects.

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6. Appendix

Table A2. Municipality characteristics.

	Population in 1998	Year of closure	Military employment as share of total employment			Close to tertiary education	Municipality classification
Exposed municipalities			Two years before closure	Two years after closure	Change		
Falun	54,511	2000	1,2%	0,0%	-1,2%	Yes	Small town.
Gotland	57,746	2005	3,2%	0,6%	-2,6%	No	Small town.
Hässleholm	49,156	2000	3,9%	0,9%	-3,0%	Yes	Commuting municipality with a low commuting rate near medium-sized town.
Kiruna	25,148	1998	2,6%	0,1%	-2,6%	No	Small town.
Norrtälje	51,410	2000	2,3%	0,1%	-2,2%	Yes	Small town.
Sollefteå	23,038	2000	6,8%	0,9%	-5,9%	Yes	Rural municipality.
Strängnäs	29,044	2005	8,5%	0,8%	-7,7%	Yes	Commuting municipality near medium-sized town.
Söderhamn	28,395	1998	5,0%	0,0%	-5,0%	Yes	Rural municipality.
Ystad	25,953	1998	1,8%	0,1%	-1,7%	No	Small town.
Ängelholm	36,784	2003	5,4%	0,1%	-5,3%	No	Commuting municipality near medium-sized town.
Average	38,119		4,1%	0,4%	-3.7%		
Control municipalities			In 1997	In 2006	Change		
Arvidsjaur	7,460	-	4,4%	6,6%	2,2%	No	Rural municipality.
Boden	29,290	-	9,6%	7,4%	-2,2%	Yes	Commuting municipality with a low commuting rate near medium-sized town.
Eksjö	17,284	-	5,2%	4,9%	-0,4%	No	Commuting municipality near small town.
Enköping	36,169	-	3,8%	2,7%	-1,1%	Yes	Commuting municipality near medium-sized town.
Karlsborg	7,365	-	9,1%	11,7%	2,6%	No	Commuting municipality near small town.
Lidköping	36,822	-	3,5%	3,6%	0,1%	No	Small town.
Ronneby	29,007	-	3,5%	6,2%	2,7%	Yes	Commuting municipality near small town.
Skövde	49,397	-	2,9%	3,2%	0,3%	Yes	Small town.
Upplands-Bro	20,436	-	3,5%	3,4%	-0,1%	Yes	Commuting municipality near large city.
Average	25,914		5,0%	5,5%	0,5%		

Notes: The share of military employment is based on everyone employed at the Swedish Armed Forces and residing in the municipality. The municipality classification is according to the definition by *the Swedish Association of Local Authorities and Regions*.

Table A3. Variable description.

Variable	Description
Currently enrolled	Registered in tertiary education at some point during the year.
Completed one semester	Highest attained education is at least 30 ECTS.
Student funding (k SEK)	Includes student loans and student grants. Shown in thousands of Swedish kronor, inflation-adjusted to 2010 values.
Earned income (k SEK)	Shown in thousands of Swedish kronor, inflation-adjusted to 2010 values.
Disposable income (k SEK)	Shown in thousands of Swedish kronor, inflation-adjusted to 2010 values.
Employment	Having any employment during the year.
Relocation	Residing in a municipality that is neither the home municipality (where the individual resides at age 18) nor one that borders it.
Military employment	Employed by the Swedish Armed Forces during the year, with this employment being the largest source of income. Includes civilians which correspond to around one-third of all the employees.
Military service	Getting any compensation for participating in military service or civil service lasting longer than 60 days during the year.
Any military service	Getting any compensation for participating in military service or civil service lasting longer than 60 days during the current or previous years.
Military education	Completed an officer education program (*yrkesofficersutbildning*). In most cases, it takes place in Stockholm.

Table A4. Summary statistics for the individuals.

	Individuals from municipalities with a military base				Rest of Sweden	
Variable	Cohorts treated at age 18	Cohorts treated at age 24	Untreated younger cohorts	Untreated older cohorts	Younger cohorts	Older cohorts
Women	0.503	0.496	0.496	0.491	0.491	0.492
Foreign background	0.063	0.042	0.087	0.070	0.155	0.140
Mother, any tert. educ.	0.359	0.309	0.360	0.332	-	-
Father, any tert. educ.	0.320	0.295	0.323	0.312	-	-
Currently enrolled						
Age 20	0.245	0.210	0.250	0.254	-	-
Age 24	0.356	0.334	0.357	0.345	-	-
Completed one semester						
Age 20	0.097	0.059	0.093	0.088	0.080	0.071
Age 24	0.444	0.377	0.446	0.426	0.373	0.367
Attained bachelor's degree						
Age 24	0.185	0.138	0.197	0.179	0.156	0.162
Years of tertiary education						
Age 20	0.097	0.063	0.094	0.095	0.081	0.074
Age 24	0.948	0.756	0.978	0.900	0.780	0.800
Student funding (k SEK)						
Age 20	14.2	12.6	13.7	14.3	12.2	12.5
Age 24	22.7	22.8	22.6	22.3	20.3	21.0
Earned income (k SEK)						
Age 20	84.8	58.7	91.5	61.5	83.0	67.0
Age 24	139	129	146	135	134	128
Disposable income (k SEK)						
Age 20	102	81.7	109	84.7	102	87.1
Age 24	176	169	183	173	171	167
Employment						
Age 20	0.559	0.429	0.576	0.438	-	-
Age 24	0.685	0.672	0.699	0.688	-	-
Relocation						
Age 20	0.154	0.110	0.140	0.123	-	-
Age 24	0.300	0.282	0.269	0.269	-	-
Military education						
Age 24	0.002	0.002	0.06	0.006	-	-
Military conscripted						
Age 20	0.135	0.251	0.146	0.232	0.116	0.179
Military employment						
Age 20	0.004	0.007	0.008	0.008	0.004	0.003
Age 24	0.005	0.008	0.015	0.015	0.005	0.006
Cohorts	1980, 1982, 1985, 1987	1974, 1976, 1979, 1981	1980, 1982, 1985, 1987	1974, 1976, 1979, 1981	1980, 1982, 1985, 1987	1974, 1976, 1979, 1981
# individuals	3,835	4,064	9,343	9,527	397,728	286,199

Notes: No data for the rest of Sweden for parental education, currently enrolled, employment, relocation, and military education.

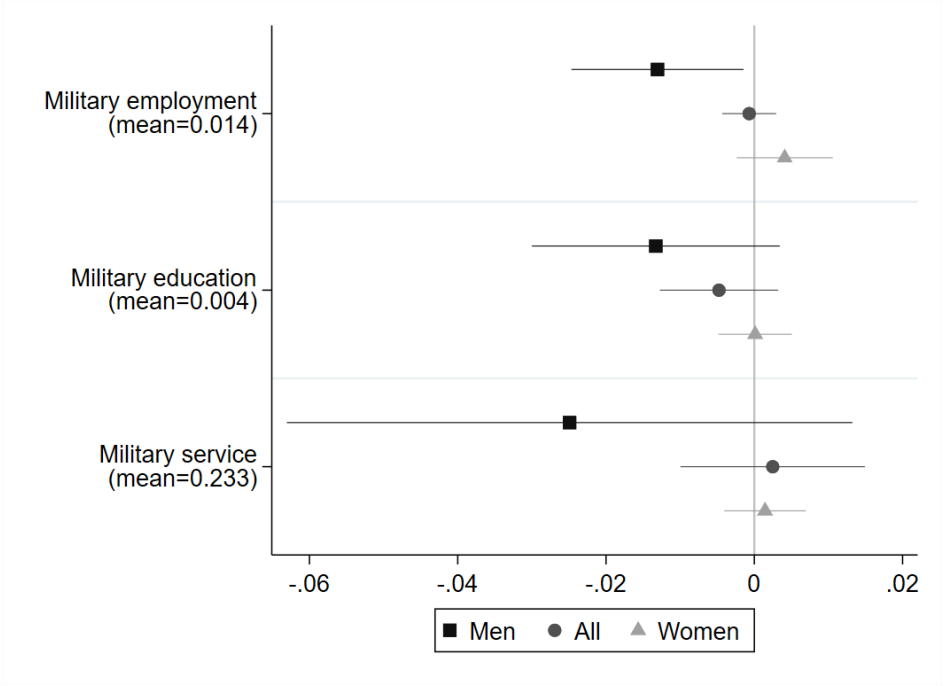


Figure A7. Effect on military related outcomes at age 24.
Notes: The estimates show the marginal effects from probit regressions. The educational field corresponds to the field of the highest attained tertiary education. Mean refers to full sample mean at age 24. All individuals are included, i.e. also individuals without any tertiary education.

(a) Military employment rate

(b) Military service rate

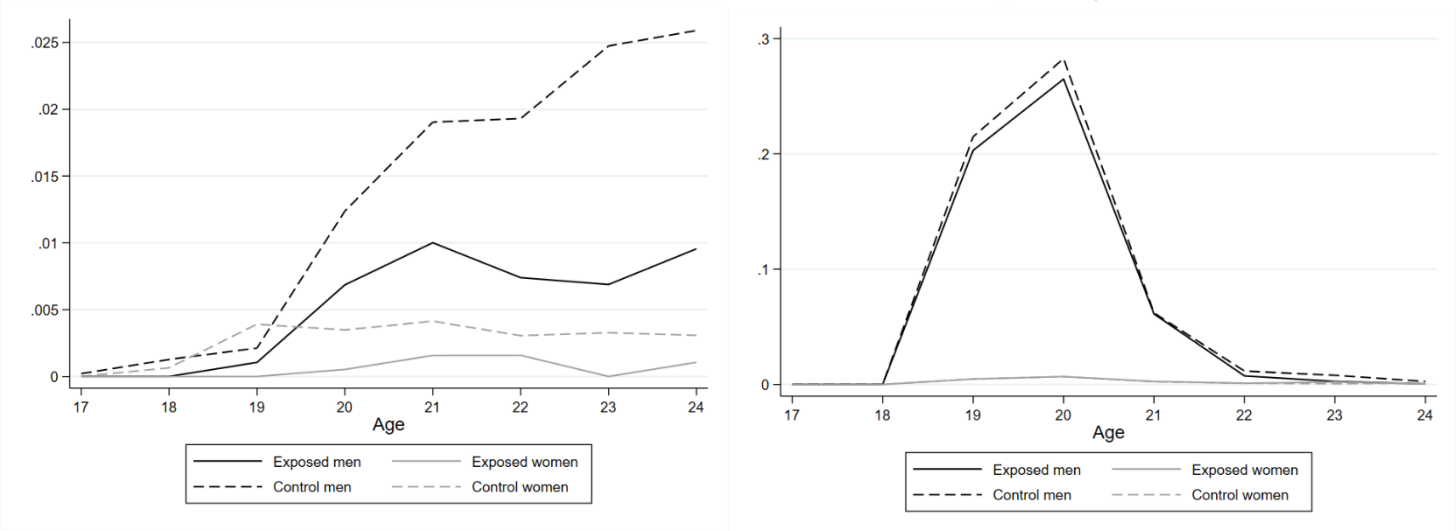


Figure A8. Military employment rate and military service rate.
Notes: Exposed refers to being 18 years old when a base is closed in the home municipality. Control individuals belong to the same cohorts as the exposed individuals but resided in a control municipality at age 18.

Table A5. Effect of a nearby base closure at age 18.

				Close to tert. education		Far from tert. education	
	All	Men	Women	Men	Women	Men	Women
Outcomes	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Currently enrolled, age 20 (mean=0.245)	0.025* (0.013)	0.028* (0.016)	0.022 (0.016)	0.037 (0.022)	0.019 (0.021)	0.014 (0.021)	0.030 (0.023)
Currently enrolled, age 24 (mean=0.359)	-0.021** (0.009)	-0.005 (0.012)	-0.039*** (0.012)	0.016 (0.013)	-0.021 (0.013)	-0.026 (0.016)	-0.056*** (0.015)
One semester completed, age 20 (mean=0.087)	0.028*** (0.008)	0.035*** (0.009)	0.022** (0.010)	0.052*** (0.014)	0.016 (0.014)	0.012 (0.009)	0.027** (0.012)
One semester completed, age 24 (mean=0.428)	0.015 (0.010)	0.034** (0.015)	-0.003 (0.012)	0.049*** (0.018)	0.017 (0.016)	0.019 (0.019)	-0.026* (0.013)
Bachelor's degree, age 24 (mean=0.180)	0.011 (0.010)	0.003 (0.011)	0.020* (0.011)	0.014 (0.013)	0.004 (0.012)	-0.009 (0.016)	0.038* (0.018)
Years of tertiary education, age 24 (mean=0.912)	0.036 (0.028)	0.056 (0.039)	0.018 (0.030)	0.102** (0.044)	0.025 (0.040)	0.006 (0.061)	0.009 (0.035)
Student funding, age 20 (1 sd=21.5k SEK)	0.048* (0.025)	0.057** (0.025)	0.042 (0.039)	0.080** (0.036)	0.075* (0.044)	0.026 (0.030)	0.016 (0.060)
Student funding, age 24 (1 sd=33.0k SEK)	-0.081** (0.032)	-0.022 (0.035)	-0.145*** (0.043)	0.035 (0.044)	-0.113* (0.057)	-0.076* (0.041)	-0.176*** (0.054)
Cum. student funding, age 19-24 (1 sd=121k SEK)	-0.006 (0.030)	0.033 (0.031)	-0.046 (0.039)	0.101*** (0.033)	-0.017 (0.051)	-0.039 (0.045)	-0.068 (0.052)
Earned income, age 20 (1 sd=71.5k SEK)	-0.069** (0.030)	-0.085** (0.034)	-0.053 (0.035)	-0.055 (0.040)	-0.025 (0.036)	-0.115** (0.050)	-0.086 (0.053)
Earned income, age 24 (1 sd=110k SEK)	0.019 (0.031)	-0.052 (0.041)	0.097*** (0.032)	-0.130** (0.053)	0.077* (0.044)	0.027 (0.046)	0.110*** (0.037)
Cum. earned income, age 19-24 (1 sd=401k SEK)	-0.027 (0.026)	-0.086*** (0.031)	0.036 (0.031)	-0.129*** (0.034)	0.031 (0.031)	-0.045 (0.045)	0.035 (0.048)
Disposable income, age 20 (1 sd=95.1k SEK)	-0.065** (0.026)	-0.086*** (0.032)	-0.042 (0.030)	-0.054 (0.036)	-0.007 (0.030)	-0.123*** (0.046)	-0.082* (0.044)
Disposable income, age 24 (1 sd=88.9k SEK)	-0.008 (0.024)	-0.082*** (0.031)	0.072*** (0.025)	-0.141*** (0.037)	0.059* (0.035)	-0.020 (0.039)	0.076** (0.030)
Cum. disp. income, age 19-24 (1 sd=338k SEK)	-0.052** (0.026)	-0.116*** (0.032)	0.017 (0.029)	-0.128*** (0.033)	0.021 (0.027)	-0.109** (0.052)	0.007 (0.045)
Employment, age 20 (mean=0.502)	-0.018 (0.016)	-0.023 (0.018)	-0.013 (0.018)	-0.015 (0.024)	-0.022 (0.023)	-0.022 (0.026)	0.000 (0.025)
Employment, age 24 (mean=0.689)	0.006 (0.010)	-0.024 (0.016)	0.036*** (0.012)	-0.060*** (0.022)	0.031* (0.017)	0.013 (0.014)	0.041*** (0.013)
Relocated, age 20 (mean=0.132)	0.013 (0.009)	0.011 (0.010)	0.015 (0.013)	-0.011 (0.009)	0.007 (0.021)	0.031** (0.014)	0.022 (0.014)
Relocated, age 24 (mean=0.275)	-0.005 (0.009)	0.019 (0.014)	-0.030** (0.013)	0.005 (0.019)	-0.044** (0.018)	0.034** (0.016)	-0.016 (0.016)
Relocated to tert. education, age 20 (mean=0.028)	-	-	-	0.030*** (0.009)	-0.009 (0.008)	-	-
Reloc. to tert. education, age 24 (mean=0.042)	-	-	-	0.023 (0.021)	-0.002 (0.013)	-	-
# individuals	26,769	13,516	13,253	11,828	11,551	11,249	11,011

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered on the municipality and cohort level. Standard deviations are based on the full sample from age 19 to 24. The coefficients represent β_1 from equation (1). Mean refers to full sample mean. *Close to tert. education* refers to individuals with a home municipality offering tertiary education or borders one that does. *Far from tert. education* refers to individuals with a home municipality not offering tertiary education nor borders a municipality that does. Relocating to neighbouring tertiary education (last rows) means residing in a municipality that offers tertiary education and borders the home municipality.

Table A6. Effect of a nearby base closure at age 18 by ability level.

	Low ability			High Ability		
	All	Men	Women	All	Men	Women
Outcomes	(1)	(2)	(3)	(4)	(5)	(6)
Currently enrolled, age 20 (mean=0.245)	0.010 (0.011)	0.026** (0.012)	-0.014 (0.019)	0.055** (0.022)	0.045 (0.035)	0.061*** (0.023)
Currently enrolled, age 24 (mean=0.359)	0.011 (0.009)	0.029*** (0.010)	-0.015 (0.017)	-0.037*** (0.012)	-0.030 (0.021)	-0.044*** (0.016)
One semester completed, age 20 (mean=0.087)	0.011** (0.005)	0.024*** (0.006)	-0.006 (0.009)	0.051*** (0.014)	0.056*** (0.021)	0.044*** (0.015)
One semester completed, age 24 (mean=0.428)	0.043*** (0.014)	0.069*** (0.014)	0.006 (0.022)	0.009 (0.013)	0.012 (0.025)	0.005 (0.016)
Bachelor's degree, age 24 (mean=0.180)	0.009 (0.008)	0.014* (0.007)	0.003 (0.013)	0.025* (0.015)	0.001 (0.022)	0.041** (0.016)
Years of tertiary education, age 24 (mean=0.912)	0.071** (0.032)	0.111*** (0.030)	0.014 (0.050)	0.052 (0.038)	0.038 (0.071)	0.058 (0.040)
Student funding, age 20 (1 sd=21.5k SEK)	-0.012 (0.021)	0.010 (0.022)	-0.040 (0.041)	0.129*** (0.039)	0.136** (0.053)	0.118** (0.045)
Student funding, age 24 (1 sd=33.0k SEK)	0.027 (0.037)	0.077** (0.038)	-0.043 (0.059)	-0.162*** (0.040)	-0.125* (0.063)	-0.189*** (0.052)
Cum. student funding, age 19-24 (1 sd=121k SEK)	0.027 (0.030)	0.061** (0.028)	-0.021 (0.052)	-0.007 (0.038)	0.031 (0.054)	-0.037 (0.041)
Earned income, age 20 (1 sd=71.5k SEK)	-0.085** (0.033)	-0.110*** (0.037)	-0.045 (0.046)	-0.052* (0.031)	-0.043 (0.041)	-0.055* (0.032)
Earned income, age 24 (1 sd=110k SEK)	-0.080** (0.035)	-0.087** (0.042)	-0.075 (0.053)	0.110*** (0.037)	-0.017 (0.061)	0.201*** (0.039)
Cum. earned income, age 19-24 (1 sd=401k SEK)	-0.071** (0.030)	-0.101*** (0.034)	-0.032 (0.042)	0.017 (0.029)	-0.066 (0.042)	0.081** (0.032)
Disposable income, age 20 (1 sd=95.1k SEK)	-0.096*** (0.031)	-0.129*** (0.035)	-0.044 (0.042)	-0.029 (0.027)	-0.017 (0.038)	-0.035 (0.028)
Disposable income, age 24 (1 sd=88.9k SEK)	-0.082*** (0.029)	-0.109*** (0.033)	-0.045 (0.045)	0.061** (0.029)	-0.055 (0.050)	0.145*** (0.032)
Cum. disp. income, age 19-24 (1 sd=338k SEK)	-0.094*** (0.034)	-0.136*** (0.040)	-0.038 (0.045)	-0.003 (0.028)	-0.083* (0.042)	0.059* (0.030)
Employment, age 20 (mean=0.502)	-0.022 (0.016)	-0.037* (0.020)	0.002 (0.025)	-0.014 (0.019)	-0.001 (0.027)	-0.019 (0.019)
Employment, age 24 (mean=0.689)	-0.004 (0.012)	-0.009 (0.017)	0.002 (0.017)	0.014 (0.013)	-0.046** (0.023)	0.056*** (0.015)
Relocated, age 20 (mean=0.132)	0.006 (0.009)	0.005 (0.011)	0.007 (0.016)	0.026* (0.015)	0.026 (0.019)	0.023 (0.020)
Relocated, age 24 (mean=0.275)	-0.002 (0.012)	0.011 (0.016)	-0.020 (0.020)	-0.001 (0.013)	0.037 (0.024)	-0.028 (0.017)
# individuals	13,265	7,905	5,360	13,504	5,611	7,893

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered on the municipality and cohort level. Standard deviations are based on the full sample from age 19 to 24. Mean refers to full sample mean. *High ability* refers to belonging to the top 50% of the grade distribution in the year of graduation. *Low ability* refers to belonging to the bottom 50% of the grade distribution in the year of graduation.

Table A7. Effect of a nearby base closure at age 18 by SES level.

	Low SES			High SES		
	All	Men	Women	All	Men	Women
Outcomes	(1)	(2)	(3)	(4)	(5)	(6)
Currently enrolled, age 20 (mean=0.245)	0.002 (0.010)	0.020 (0.014)	-0.017 (0.015)	0.051** (0.022)	0.038 (0.026)	0.065** (0.026)
Currently enrolled, age 24 (mean=0.359)	-0.020* (0.011)	-0.008 (0.014)	-0.036** (0.014)	-0.021* (0.012)	-0.003 (0.017)	-0.043** (0.018)
One semester completed, age 20 (mean=0.087)	0.027*** (0.007)	0.027*** (0.008)	0.027** (0.011)	0.033*** (0.011)	0.045*** (0.016)	0.020 (0.013)
One semester completed, age 24 (mean=0.428)	0.011 (0.013)	0.041*** (0.014)	-0.021 (0.020)	0.021 (0.015)	0.027 (0.025)	0.016 (0.020)
Bachelor's degree, age 24 (mean=0.180)	0.002 (0.009)	-0.008 (0.010)	0.012 (0.013)	0.022 (0.017)	0.014 (0.019)	0.033* (0.020)
Years of tertiary education, age 24 (mean=0.912)	0.009 (0.030)	0.046 (0.031)	-0.029 (0.048)	0.071 (0.043)	0.070 (0.067)	0.076* (0.040)
Student funding, age 20 (1 sd=21.5k SEK)	0.023 (0.020)	0.032 (0.021)	0.015 (0.039)	0.077** (0.038)	0.087* (0.044)	0.070 (0.050)
Student funding, age 24 (1 sd=33.0k SEK)	-0.118*** (0.042)	-0.032 (0.036)	-0.214*** (0.059)	-0.042 (0.039)	-0.021 (0.054)	-0.071 (0.055)
Cum. student funding, age 19-24 (1 sd=121k SEK)	-0.028 (0.034)	0.000 (0.027)	-0.060 (0.054)	0.016 (0.040)	0.063 (0.055)	-0.032 (0.046)
Earned income, age 20 (1 sd=71.5k SEK)	-0.069** (0.032)	-0.076* (0.043)	-0.060 (0.041)	-0.070** (0.034)	-0.098** (0.043)	-0.040 (0.041)
Earned income, age 24 (1 sd=110k SEK)	0.048 (0.043)	-0.002 (0.054)	0.115** (0.044)	-0.015 (0.040)	-0.108* (0.058)	0.089** (0.039)
Cum. earned income, age 19-24 (1 sd=401k SEK)	0.000 (0.031)	-0.042 (0.042)	0.053 (0.039)	-0.056 (0.035)	-0.133*** (0.047)	0.028 (0.035)
Disposable income, age 20 (1 sd=95.1k SEK)	-0.077*** (0.029)	-0.092** (0.040)	-0.059 (0.037)	-0.049 (0.031)	-0.076* (0.042)	-0.017 (0.033)
Disposable income, age 24 (1 sd=88.9k SEK)	-0.002 (0.035)	-0.052 (0.044)	0.064* (0.037)	-0.014 (0.034)	-0.113** (0.051)	0.092*** (0.028)
Cum. disp. income, age 19-24 (1 sd=338k SEK)	-0.039 (0.031)	-0.091** (0.043)	0.024 (0.038)	-0.062* (0.035)	-0.138*** (0.049)	0.023 (0.034)
Employment, age 20 (mean=0.502)	0.001 (0.018)	-0.009 (0.025)	0.011 (0.021)	-0.037** (0.017)	-0.037* (0.021)	-0.036* (0.022)
Employment, age 24 (mean=0.689)	0.021 (0.014)	0.007 (0.021)	0.037** (0.016)	-0.009 (0.014)	-0.058*** (0.020)	0.041** (0.017)
Relocated, age 20 (mean=0.132)	0.028*** (0.010)	0.027** (0.011)	0.030* (0.017)	-0.002 (0.015)	-0.003 (0.019)	-0.001 (0.019)
Relocated, age 24 (mean=0.275)	-0.003 (0.011)	0.006 (0.018)	-0.014 (0.019)	-0.004 (0.015)	0.036* (0.021)	-0.045 (0.027)
# individuals	14,101	7,093	7,008	12,668	6,423	6,245

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered on the municipality and cohort level. Standard deviations are based on the full sample from age 19 to 24. Mean refers to full sample mean. *Low SES* means that neither parent has tertiary education. *High SES* means that at least one parent has tertiary education.

Table A8. Effect of a nearby base closure at age 18 among men.

Outcomes	Low ability & low SES	High ability & low SES	Low ability & high SES	High ability & high SES
One semester completed, age 24 (mean=0.428)	0.047***	0.041	0.095***	-0.006
	(0.016)	(0.033)	(0.023)	(0.035)
Disposable income, age 24 (1 sd=88.9k SEK)	-0.048	-0.052	-0.199***	-0.048
	(0.044)	(0.078)	(0.062)	(0.069)
Cumulative disp. inc., age 19-24 (1 sd=338k SEK)	-0.076	-0.109	-0.208***	-0.069
	(0.049)	(0.068)	(0.065)	(0.058)
Employment, age 24 (mean=0.689)	0.019	-0.012	-0.053*	-0.066**
	(0.020)	(0.036)	(0.029)	(0.026)
Relocated, age 24 (mean=0.275)	-0.004	0.017	0.027	0.057*
	(0.020)	(0.034)	(0.024)	(0.034)
# individuals	4,672	2,345	3,125	3,197

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered on the municipality and cohort level. Mean refers to full sample mean at the given age. Standard deviations are based on the full sample from age 19 to 24. The coefficients represent β_1 from equation (1). Low ability is defined as belonging to the bottom 50% of the grade distribution at the time of graduation (i.e., the bottom two quartiles). High ability is defined as belonging to the top 50% of the grade distribution (i.e., the top two quartiles). Low SES means that neither parent has tertiary education, approximately corresponding to the bottom two quartiles of parental education. High SES means that at least one parent has tertiary education, approximately corresponding to the top two quartiles.

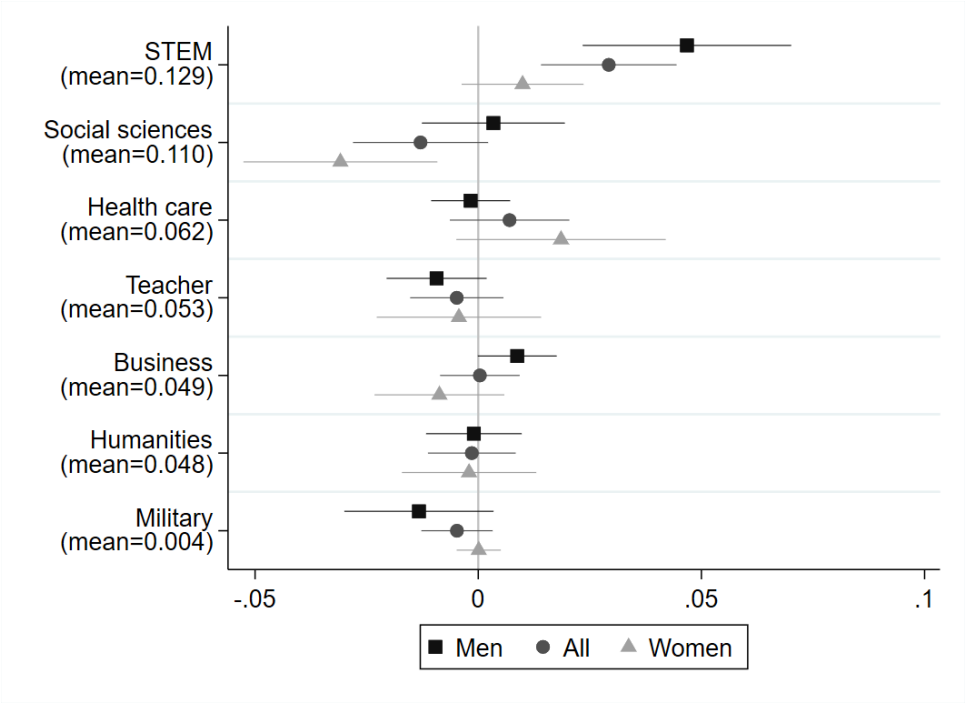


Figure A9. Effect on the field of education at age 24.

Notes: The estimates show the marginal effects from probit regressions. The educational field corresponds to the field of the highest attained tertiary education. Mean refers to full sample mean at age 24. All individuals are included, i.e. also individuals without any tertiary education.

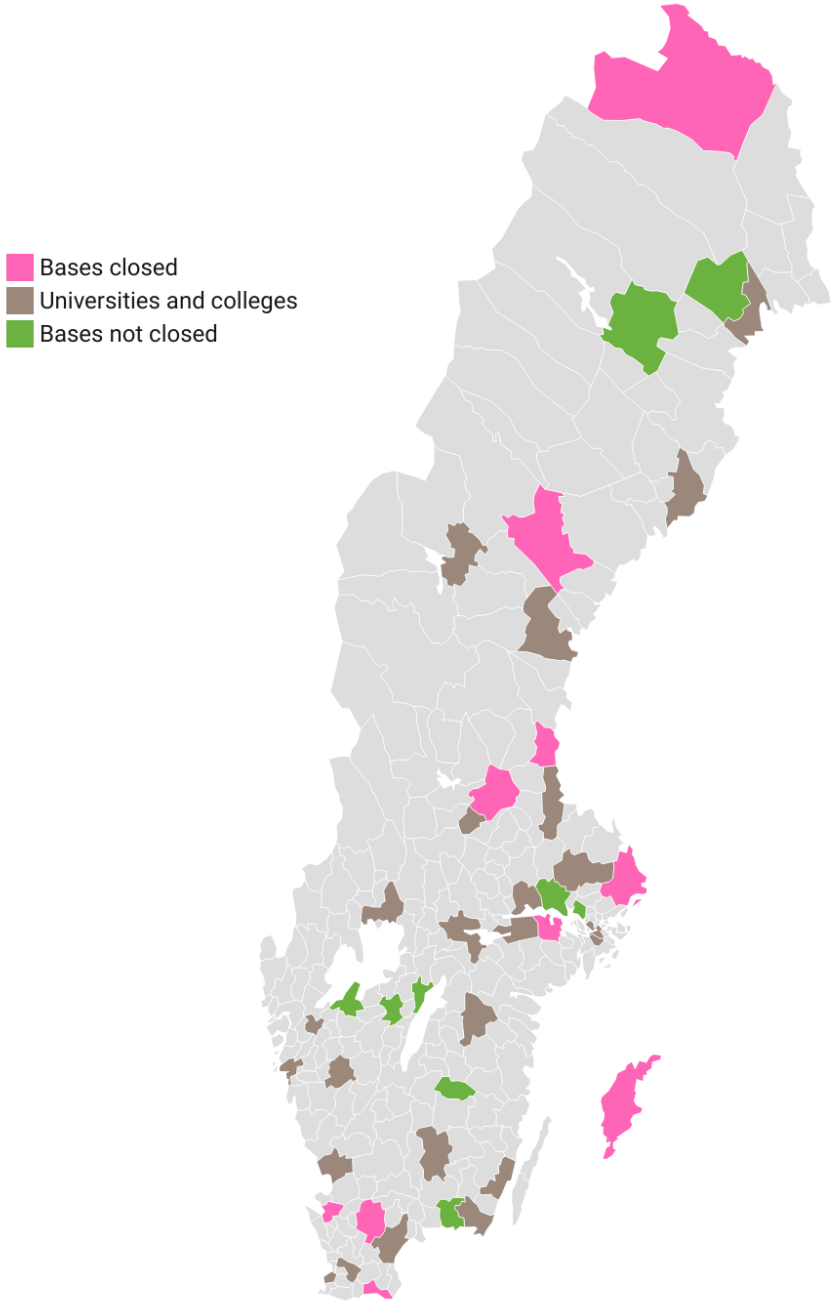


Figure A10. Municipalities with closed base, unaffected base, and university or college.

7. Appendix: Sensitivity analysis

7.1. Probit regressions

Some of the binary outcomes are highly unbalanced, suggesting that using marginal effects from probit regressions could be more convenient. In Table A9, the effects are re-estimated for the binary outcomes using marginal effects from probit regressions, presented in columns 1 and 3. Columns 2 and 4 show the same coefficients that have been shown previously, i.e. when LPM is used. No clear differences between the models are evident.

Table A9. Marginal effect using probit regressions vs. LPM.

Outcome	Men (probit) (1)	Men (LPM) (2)	Women (probit) (3)	Women (LPM) (4)
Currently enrolled, age 20 (mean=0.245)	0.028* (0.017)	0.028* (0.016)	0.021 (0.016)	0.022 (0.016)
Currently enrolled, age 24 (mean=0.359)	-0.003 (0.012)	-0.005 (0.012)	-0.038*** (0.012)	-0.039*** (0.012)
One semester completed, age 20 (mean=0.087)	0.041*** (0.009)	0.035*** (0.009)	0.019** (0.009)	0.022** (0.010)
One semester completed, age 24 (mean=0.428)	0.035** (0.015)	0.034** (0.015)	-0.004 (0.012)	-0.003 (0.012)
Employment, age 20 (mean=0.502)	-0.024 (0.018)	-0.023 (0.018)	-0.014 (0.018)	-0.013 (0.018)
Employment, age 24 (mean=0.689)	-0.022 (0.015)	-0.024 (0.016)	0.035*** (0.012)	0.036*** (0.012)
Relocated, age 20 (mean=0.132)	0.011 (0.009)	0.011 (0.010)	0.020** (0.010)	0.015 (0.013)
Relocated, age 24 (mean=0.275)	0.021 (0.014)	0.019 (0.014)	-0.027** (0.013)	-0.030** (0.013)
# individuals	13,516	13,516	13,253	13,253

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors clustered on the municipality and cohort level. Mean refers to full sample mean at the given age.

7.2. Does higher treatment intensity lead to larger effects?

Here, I focus only on individuals from municipalities where the closure had a relatively large impact on the local labor market. To measure the size of the impact, I calculate the total decrease in military employment in the affected municipality between two years before the announcement of the closure and two years after. Out of the ten municipalities with a closure, I use the five with the largest drop in the share of military employment out of total employment. This corresponds with a drop of at least three percent (see Table A2 for more details). Figure A11 shows that a higher treatment intensity leads to more pronounced effects among men which back up the identification strategy. For women, the intensity does not seem to change the outcomes.

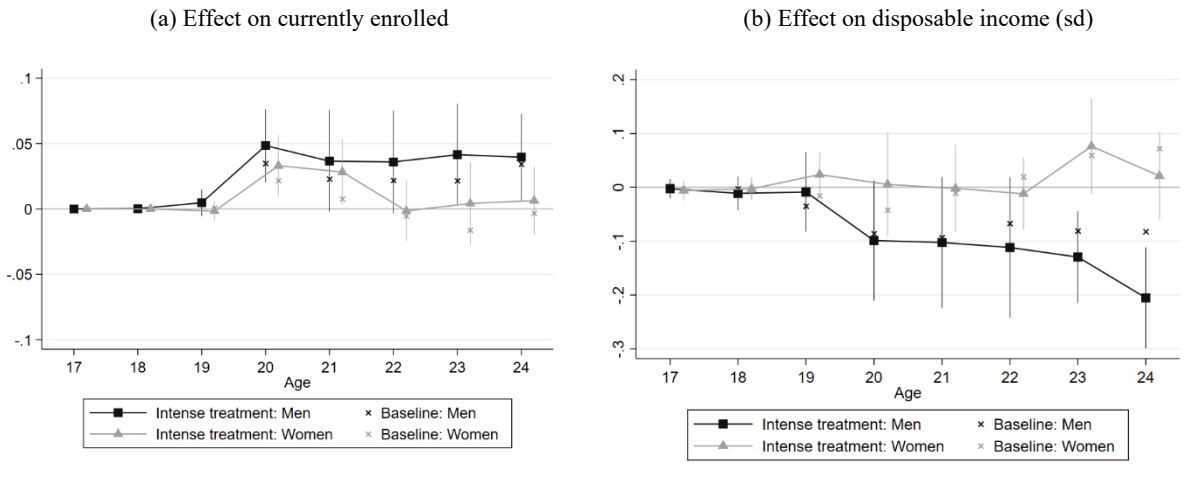


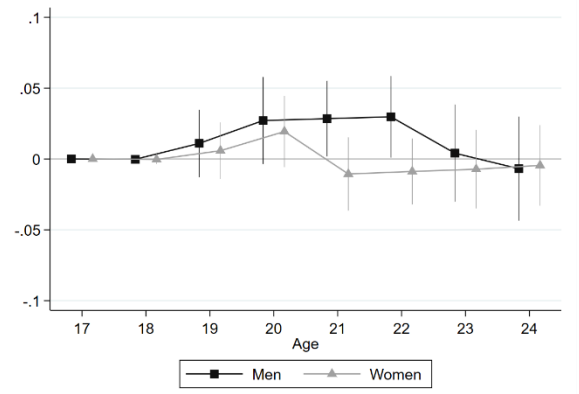
Figure A11. Effect of a nearby base closure at age 18 among individuals from municipalities with an intense treatment

Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. The coefficients represent β_1 from equation (1). Being treated intensely means having a home municipality belonging to the top five municipalities with the largest decrease in military employment as share of total employment following a closure. The baseline estimates correspond with the estimates presented in Figure 4 and Figure 3.

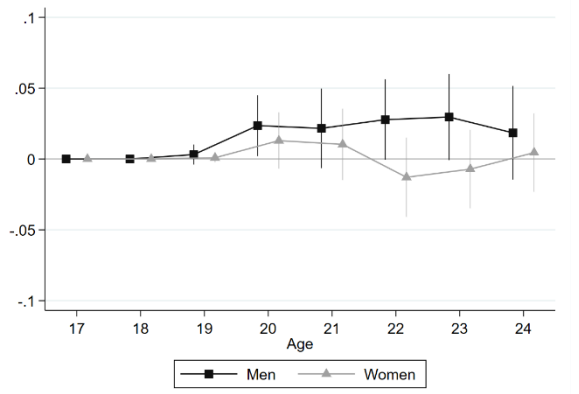
7.3. Using different control individuals

In Figure A12 and Figure A13, different control individuals are used. Instead of being 24 years old when the closure takes place, the older control cohorts are 22 (Figure A12) and 26 (Figure A13) years old. When using the former group, the estimates after age 22 become biased since then parts of the control individuals are exposed to closure. Overall, the effects are very similar to the main results.

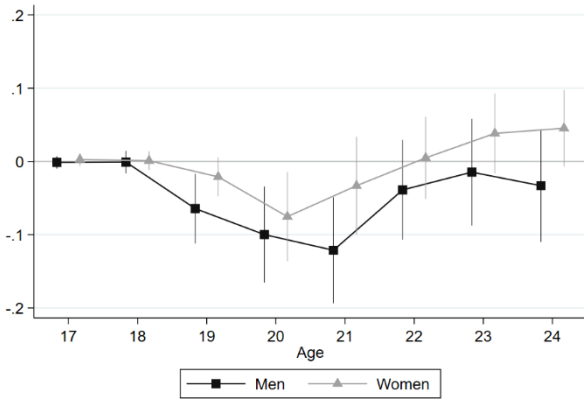
(a) Effect on currently enrolled



(b) Effect on completed one semester



(c) Effect on disposable income (sd)



(d) Effect on relocation

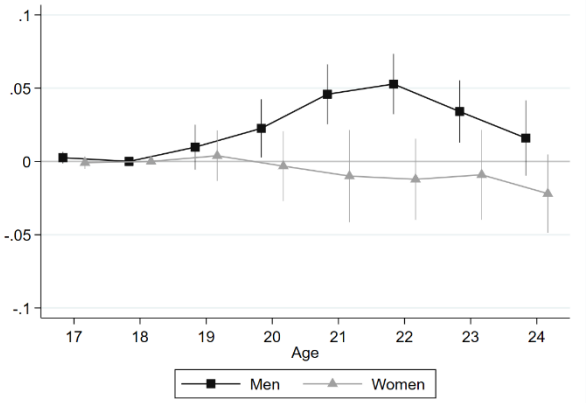
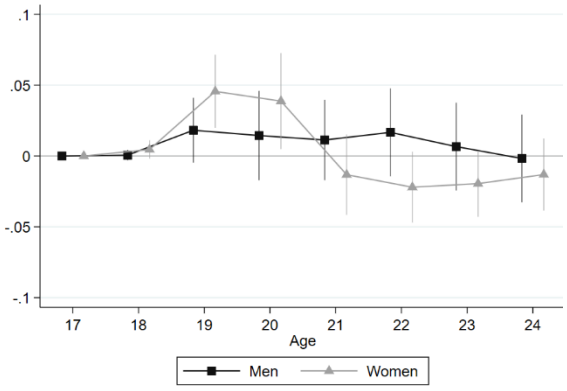
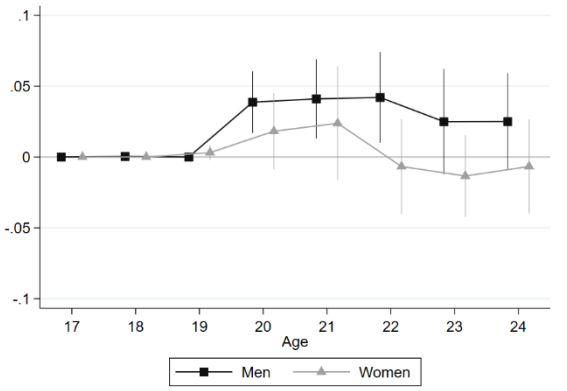


Figure A12. Effect of a nearby base closure at age 18 using older control cohorts that are 22 years old at the time of the closure.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. Parts of the control group are exposed to closure after age 22, implying that these estimates are unreliable.

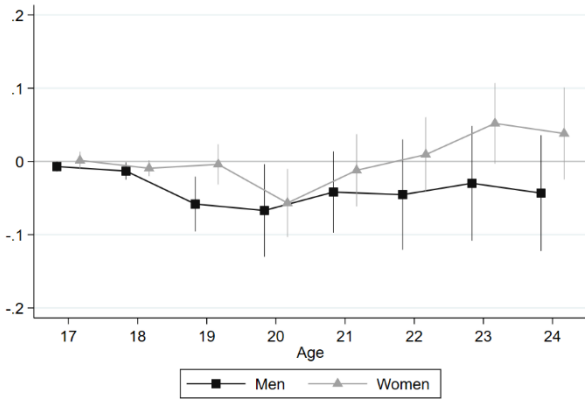
(a) Effect on currently enrolled



(b) Effect on completed one semester



(c) Effect on disposable income (sd)



(d) Effect on relocation

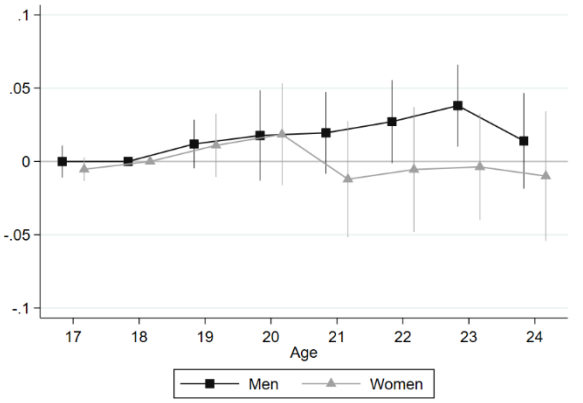


Figure A13. Effect of a nearby base closure at age 18 using older control cohorts that are 26 years old at the time of the closure.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level.

7.4. Heterogenous effects over time

The closures took place in 1998, 2000, 2003, and 2005. For the latter closures, the individuals and communities may prepare for a closure, and thus change their behavior, as they notice that this trend is emerging throughout Sweden. This could imply different effects for these closures. However, it could also be the other way around, as people may think that after the first closures have taken place, there won't be anymore. Either way, I examine in Figure A14 whether there exist any heterogeneous effects over time by only including closures taking place in 1998 and 2000. The findings resemble the main results, implying no significant differences over time.

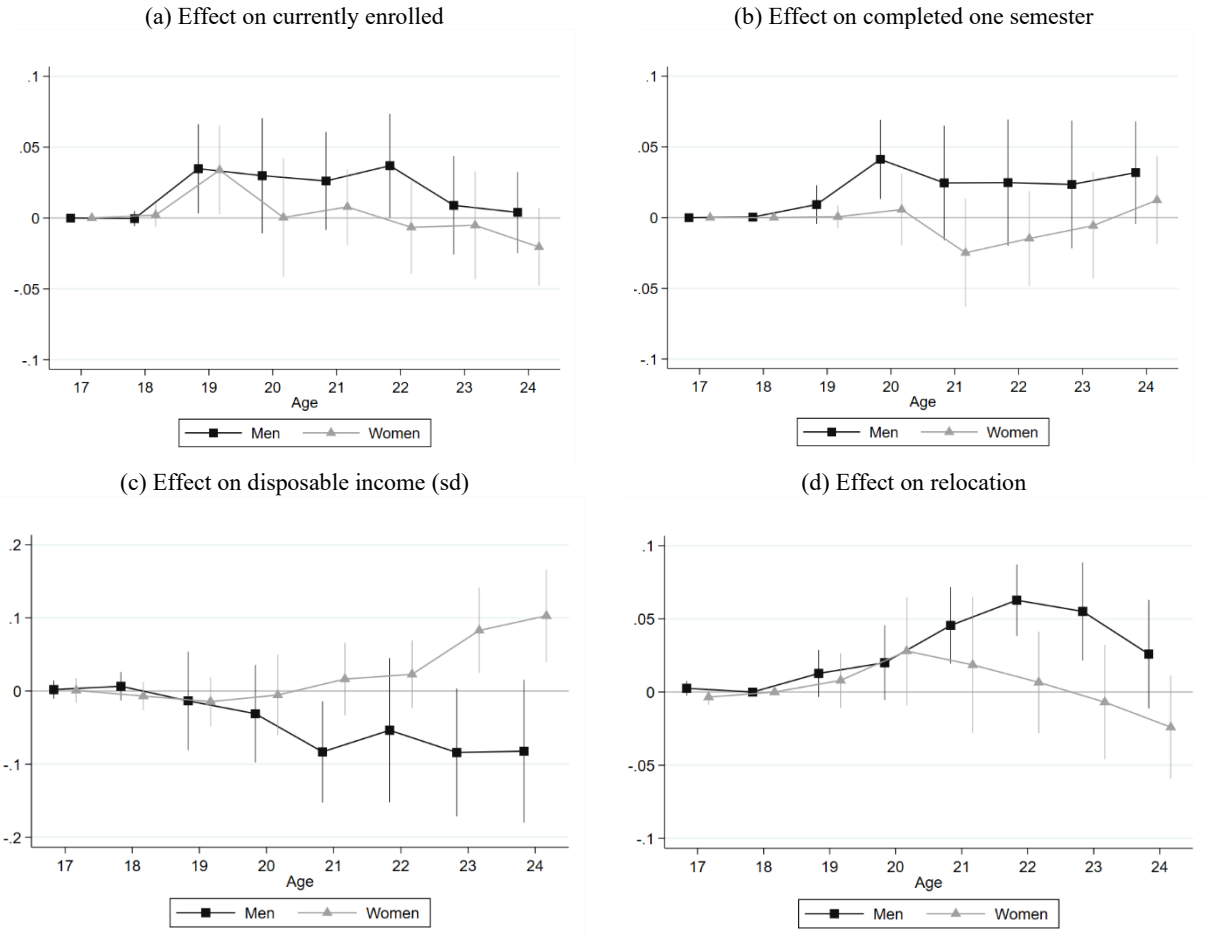


Figure A14. Effect of a nearby base closure at age 18 on individuals from municipalities with closures in 1998 or 2000.
Notes: Standard errors are clustered on home municipality and cohort. Confidence intervals at the 5% significance level. The coefficients represent β_1 from equation (1).

7.5. Are the military bases in the control municipalities expanding?

In Figure A15 I use the full Swedish population and calculate the annual share of total employment in each municipality that is employed by the Swedish Armed Forces. Municipalities are grouped into six categories: those affected by base closures (in 1998, 2000, 2003, or 2005), those with military bases that remained open (control group), and the rest of Sweden. The decline in military employment is evident around the closure year, and, importantly, there is no significant increase in military employment in the control municipalities, which would have biased the results.

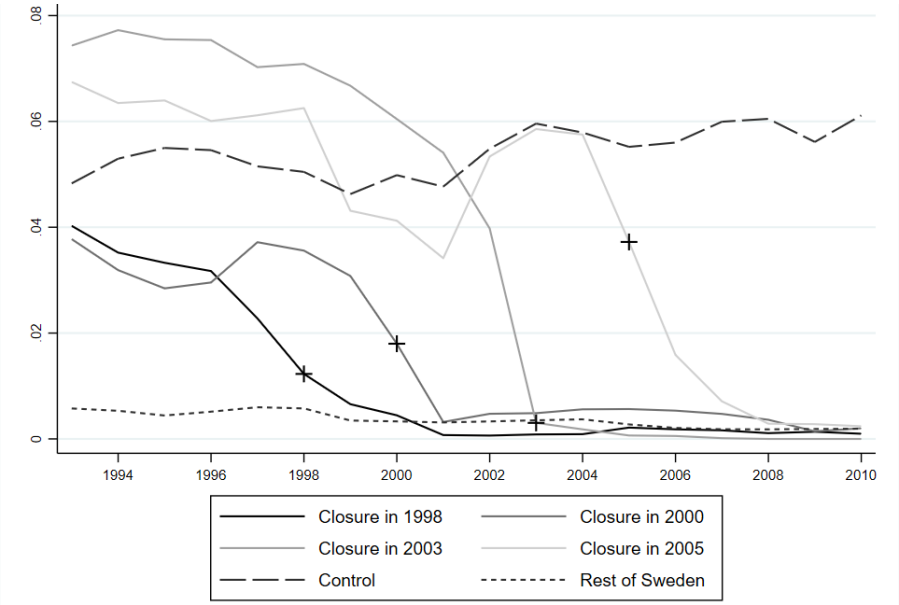


Figure A15. Military employment as share of total employment.
Notes: The crosses mark when the closures take place. Military employment refers to everyone (not only young adults) residing in the municipality and are employed by the Swedish Armed Forces. Total employment refers to everyone working in the municipality.