Hate Crime and Unemployment: is There a Connection?

Master Thesis 1 (15 hp)

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Abstract

At the same time as the right-wing extremist wind blowing across Europe, the frequency of hate crimes in Europe is on the rise. This paper investigates the relationship between hate crime and unemployment in the municipalities of Sweden. To protect individuals from being identified the hate crime data is left censored at the threshold of 19 reported hate crimes per municipality and year. The data is therefore investigated by using a Tobit regression specification. The paper cannot confirm nor deny a relationship between unemployment and hate crime because of the mixed results. Contrary to unemployment, the immigrant share of non EU citizens seems to be highly positive significant with hate crime. The results of the paper suggests that hate crimes might be prevented by attacking racial and hostility values that fluctuates in the society and to improve the integration of minority groups in the society.

Table of Contests

1. Introduction

The right-wing extremism parties in Europe have grown in popularity in recent years with growing xenophobia, racism, and nationalism as a consequence. Sweden is no longer an exception; the right-wing nationalist party, Sweden Democrats have more than quadrupled their electoral support in eight years of time; in the latest election of 2014 they received 12.9 % of the votes which made them the third largest party in Sweden. The right-wing extremist wind blowing across Europe not only questions the equality and integrity of the population in a society, it creates an "us" and "them" climate which in the long run risks to prevent integration and act as a barrier against economically beneficial immigration. (Dustman et al. 2011). In its very extreme form, right-wing extremism, xenophobia and racism might lead to unlawful actions of hate crimes.

Not only is the right-wing extremism in Sweden increasing, the reported hate crimes in Sweden have also increased tremendously the last decade as seen in Figure 1:1. In addition, according to the National Council of Crime Prevention (2015:13), the number of unreported hate crimes is high. NCCP argues that the propensity of not reporting a hate crime can have several underlying causes; the victim does not define the incident as a hate crime or considers it as trivial; the victim is ashamed of the incident or might fear reprisals from the perpetrator; or the victim do not trust the justice system and therefore choose to not report the incident.
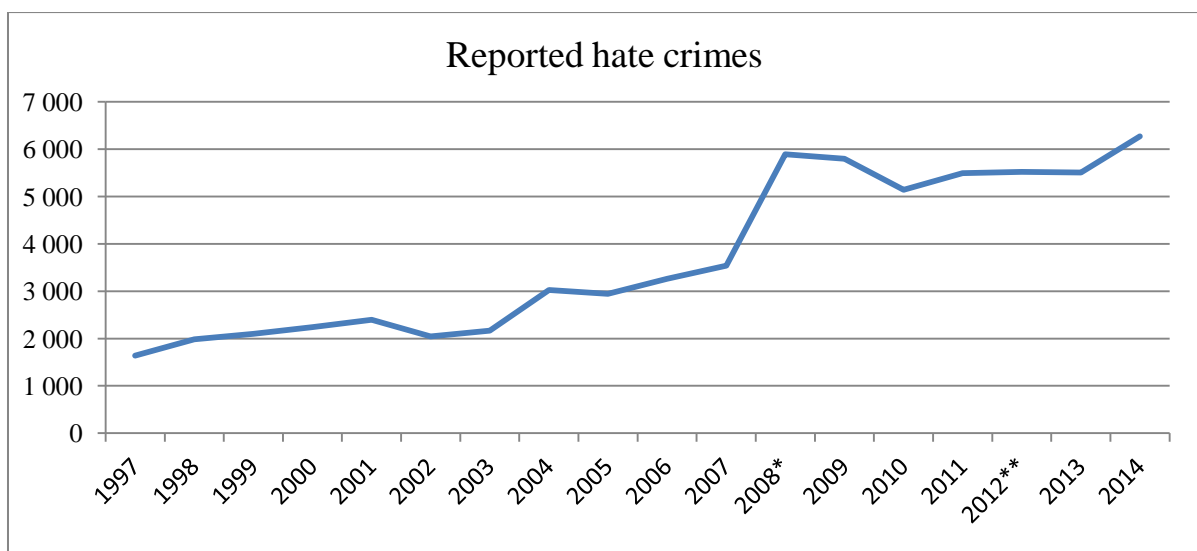
Figure 1:1. Reported hate crimes during the period 1997-2014. * At 2008 the National Council for Crime Prevention (NCCP) extended the definition of the constitution of a hate crime. Because of the change it is not possible to simply compare the levels of hate crimes before and after 2008. ** The reported hate crimes from 2012 are estimated from a sample survey. (NCCP 2015)

With the growing popularity of right-wing extremism parties in Sweden and Europe and the increase in reported hate crimes in mind; it is of great concern to find the driving forces behind xenophobia, racism, and especially hate crime.

1.2 Research question

This research will investigate the underlying causes of hate crime. It will be restricted to investigate the relationship between hate crime and unemployment and demographic composition, emphasising immigrant concentration.

1.2.1 Limitations

The research does not attempt to prove the direction of causality between hate crime and the investigated underlying causes. Nor does it try to find and explain all sources of hate crime. Further on it only studies the causes of hate crime, not the causes of xenophobia or racism, nor the explanation of the growing popularity of right-wing extremism parties across Europe. The study is also limited to analyse the causes of hate crime in Sweden.

1.3 Contribution to the literature

As will be mentioned later, only a few papers have investigated the mechanisms behind hate crimes and even fewer have investigated the relationship between hate crime and unemployment. To the best of knowledge, this is the first research that investigates the relationship between hate crime and unemployment in Sweden. Therefore, this research will contribute to the fields of crime, hate crime, and unemployment by, for the first time, studying some of the underlying causes of hate crime within the population of Sweden. Therefore the findings are unique and will hopefully bring some understandings to the causes of hate crime, both in Sweden and in other settings.

1.4 Disposition

The disposition of this paper is structured as follows: section 2 will outline some of the most common theories behind minority concentration and strain of unemployment. Section 3 gives an overview of earlier research. Section 4 presents the data and section 5 the econometric specifications that are used. The results are presented in section 6 and section 7 discusses the findings. Section 8 concludes the paper.

1. Theory

As mentioned earlier, it was not until the beginning of 1980s that hate crime became a general term. At the same time began efforts to collect data on the incidence of hate crime and approximately a decade later researchers began to scrutinize the causes of hate crimes (Dustmann, Fabbri, and Preston 2011; Falk, Kuhn, and Zweimüller 2011; Green, Strolovitch, and Wong 1998; Krueger and Pischke 1996, etc.) Since hate crime is a relatively new research area, insights about the causes of hate crime are borrowed from related literatures regarding xenophobia, hostility, and racial violence but also the anger caused by individual strain. However, the literature leaves us with ambiguous hypotheses about the relationships between both minority concentration and hate crime and the relationship between economic strain and hate crime. (Green et al. 1998)

2.1 The power of numbers

A common theory is the so called threat theory which implies that discrimination against minorities is more frequent in areas with high concentration of minority population. One of the most prominent within this theory is Blalock and his power-threat theory (1967, cited in Corzine et al. 1983). According to Blalock, discrimination against minorities i.e. hate crimes, is a function of two different types of threats perceived by the majority population; economic and political competition. He emphasises that both threats are positively related with the minority concentration but works in different directions. Blalock argues further on that when discrimination is a result of economical threat, there is a positive relationship between minority concentration and discrimination described by a logarithmic function, as seen in Figure 2:1, graph d). Whereas when the discrimination is a result of political competition, the relationship is described by an exponential function with increasing growth, as seen in Figure 2:1, graph c). Green et al. (1998) argues that the two different threat theories can be combined to one and then the relationship between discrimination and minority concentration can be described by a linear function with increasing slope. Tolnay et al. (1989) states that within the power-threat theory we are to expect hate crimes to be more frequent in areas were the minority population has increased to a stage that is threatening the majority predominance.

Another approach is described by the random interaction hypothesis, which predicts hate crime to follow a curvilinear pattern, as seen in Figure 2:1, graph b). According to the theory, hate crimes will be most frequent as the minority population and the majority population is equal in size, competing against each other for jobs and housing. But the hate crimes will

decline as the minority population outmanoeuvres the majority population in both numbers and power. (Green et al. 1998)

The tipping point theory suggests that hate crime will grow when minorities achieve approximately a quarter of the population in a residential area and will reach its height when minorities constitute about half of the population and thereafter diminish, which provides an inverted U-shaped prediction, as seen in Figure 2:1, graph e). (Green et al. 1998)

Contrary to previous theories the power-differential theory predicts the frequency of hate crimes to reflect power differences between groups, i.e. the minority population and the majority population. The relationship is argued to be linear with a negative slope, as seen in Figure 2:1, graph a). The idea behind the theory is that the minority's capacity to protect themselves is enlarged as their numbers grows. (Green et. al 1998)

The defended neighbourhoods theory is similar the previous theory; hate crime will be most frequent in areas where the majority population have the benefit of numerical advantage. The both approaches however differ in the specification of the relationship. The defended neighbourhood theory predicts an exponential decay function which slope depends on the minority in-migration in the neighbourhood. With rapid minority in-migration the slope becomes steeper than when the in-migration is low the curve becomes flatter, as seen in Figure 2:1, graph f). (Green et al. 1998)
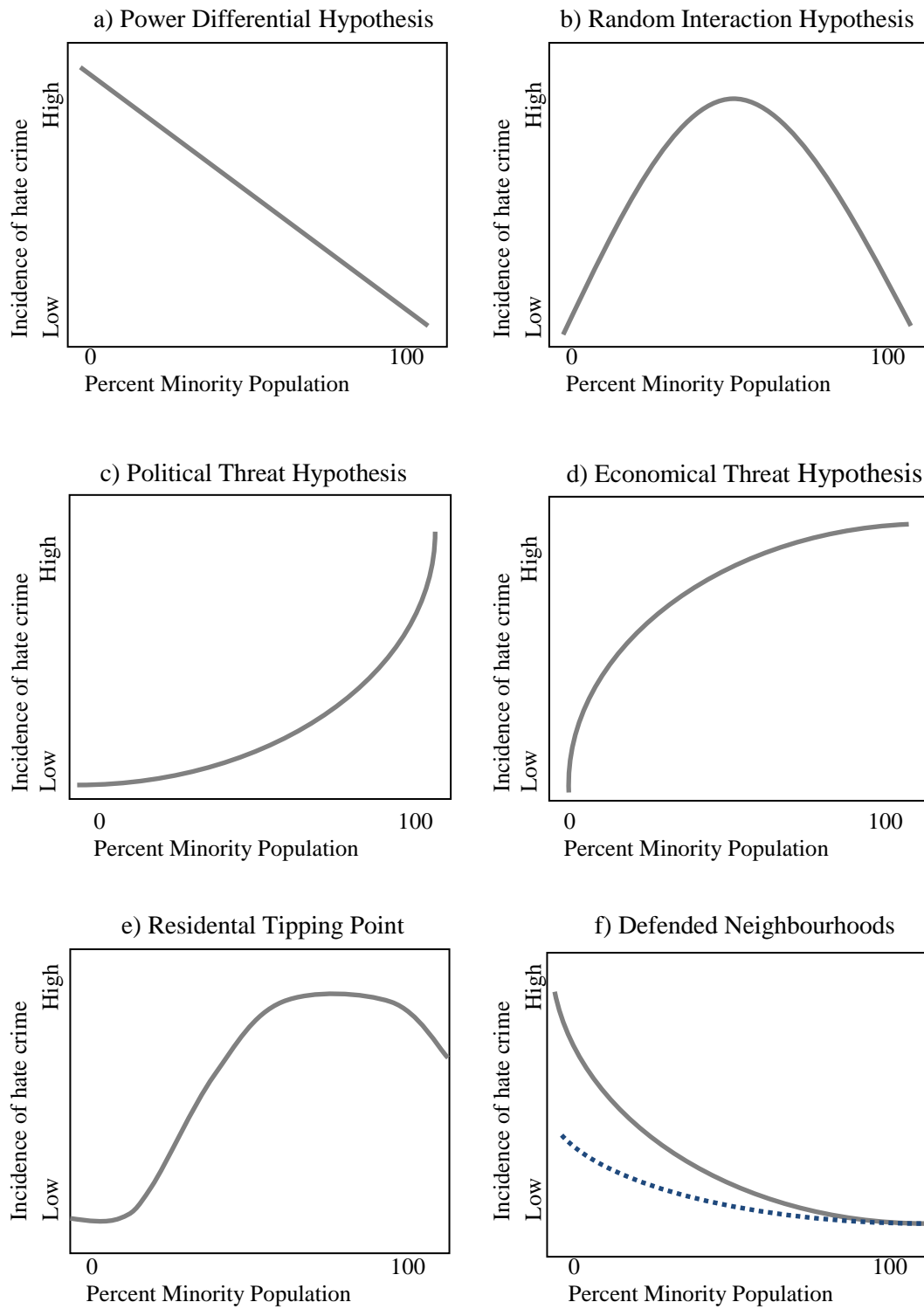
Figure 1:1. Illustration of the different hypotheses concerning hate crime and minority concentration. (Green et al. 1998)

2.2 Anger and strain from unemployment

Another explanation of the origins of hate crime is the one presented by the general strain theory. The general strain theory argues that strain, for example the burden of unemployment, increases the likelihood for the individual to experience emotions of disappointment, depression, fear, and anger. Agnew (1992) argues that anger is the reaction of strain that has the highest risk of developing feelings of revenge and at the same time to find a scapegoat. Anger also energizes the propensity of action at the same time as it lowers the individual's inhibitions. This indicates that anger affects an individual to be more prone to conduct unlawful acts. The illegal actions are suggested as a method to ease the sense of strain and failure by accomplish other types of positively valued goals that are available for the individual. Further on Agnew argues that repeated or chronic strain risks leading to hostile attitudes. This implies that individuals that develop anger from the burden of unemployment might applicate their anger on the immigrants as a scapegoat of their situation.

3. Earlier research

Even though hate crime is a severe issue, there have not been many studies on the actual mechanisms that may cause hate crimes in a society. Only a few studies have investigated the correlation between macroeconomic conditions, such as unemployment, and hate crimes. This implies that the accessibility of articles within this specific topic is very limited. Therefore studies that investigate the correlation between macroeconomic conditions and values that are associated with hate crime, such as hostility, xenophobia, and right-wing extremism political views, but also studies investigating the relationship between unemployment and ordinary crimes are included in this section. However, even when the term hate crime is extended to include political values related to hate crimes, to the author's knowledge, there has been no study that investigates the impact of unemployment on hate crimes in Sweden.

Since the literature includes both actual hate crimes and xenophobic values related to hate crimes, the literature is divided into two fields regarding the data. The literature that use hate crimes as the dependent variable are dependent of macro data whereas the literature who instead scrutinising radical values use microdata. The main reason for this division is the availability of data. because microdata appears unavailable when examining hate crimes the use of macro data is the only alternative, whereas there exists microdata based on xenophobic values and is therefore used when examining the correlation between xenophobic values and

macroeconomic conditions. There is no consensus among the studies that there exists a significant positive relationship between unemployment and hate crimes or xenophobic values. An interesting conclusion is that the dependent variable does not affect the outcome, i.e. whether hate crime or similar political values are used as dependent variable does not change the result. The earlier studies is described by first mention those who finds a positive relationship between unemployment and hate crime, or unemployment and ordinary crimes and ends with studies that investigates the relationship between immigrant share and hate crimes.

One study that provide empirical support for a significant positive relationship between hate crime and unemployment is conducted by Falk et al. (2011) who investigate whether unemployment can cause right-wing extremist crimes in Germany during 1996-1999. By using state-level macro data they find a significant positive relationship between unemployment and right-wing extremist crimes, a result which is robust when including state-fixed effects and state-specific time trends. An interesting finding in their study is that total unemployment predicts right-wing extremist crime better than youth unemployment. They argue that this is due to that high unemployment increases the fear of losing a job and therefore risks to lower people's willingness to support fundamental values in a society which in turn may lead to a climate that has more acceptance against right-wing extremism which match the threat theory.

Siedler (2006) is in line with previous authors when he examines the effect of parental unemployment during childhood on attitudes towards right-wing extremism and xenophobia among adolescents. He uses microdata based on right-wing extremist values and finds a significant relationship between parental unemployment and right-wing extremism. Siedler argues that individuals who develop feelings of economic insecurity are more adoptive to right-wing extremism and xenophobia. Another study which results also supports the theory of a relationship between unemployment and hate crime is Dustmann et al. (2011), who examine the causes of racial harassment in the UK. They use microdata on self-reported experience of racial harassment and find a significant positive relationship between areas with high unemployment and racial harassment. Gang et al. (2002) analyses the determinant of attitudes toward immigrants among Europeans by using microdata from Eurobarometer surveys in 1988 and 1997. They find that Europeans who compete with immigrants in the labour market have more negative attitudes towards immigrants. They also find that an increased concentration of immigrants in a neighbourhood increases the negative attitudes.

Three Swedish papers investigate the relationship between unemployment and ordinary crime. Almén and Nordin investigate the relationship between unemployment and ordinary crime in Swedish municipalities using post-200 data. They stresses that long-term unemployment is a better prediction of crime than total unemployment. They argue that long-term unemployment causes feelings of isolation that may cause violent and other non-rational behaviours. The two other Swedish studies that are conducted by Edmark (2005) and Öster and Agell (2007) finds evidence for a relationship between unemployment and property crimes but no relationship between unemployment and violent crimes.

In contrast to the studies mentioned above, Green et al (1998) does not find any relationship between unemployment and hate crimes when investigating hate crimes against Asians, Latinos, and Blacks using macro data over crime statistics in New York. However, they find that hate crimes are more frequently in predominately white areas and in areas with high in-migration of minorities. Krueger and Pischke (1996) investigated hate crimes by using macro data in Germany based on newspaper reports between January 1991 and June 1993. They find no evidence for supporting the threat theory; instead they find significant difference in patterns of violence in former East and West Germany. Hate crime is more widespread in east and rises with distance from the former West German border. Oliver & Mendelberg (2000) analyse microdata based on non-hispanic whites' attitudes toward "minorities" from a random-digit telephone survey. They also dismiss the threat hypothesis and argues that xenophobia and racism is much more complicated and complex. They argue that living amongst more undereducated whites has a greater impact on white's racial attitudes rather than living amongst a greater concentration of minorities.

Another angle is studied by Rydgren and Ruth (2011), who used macro data from the Swedish elections 2006 and 2010 to investigate the Swedish right-wing nationalist party, Sweden Democrats, and their electoral support. They find support for the social marginality hypothesis: electoral support for the Sweden Democrats appears to be negatively correlated with the average level of education and with the Gross Regional Product per capita, and positively correlated with the unemployment rate of the municipality.

4. Data and descriptive statistics

Almén and Nordin (2011) argues that it is important to use data at local levels since crime varies significantly even within small geographic areas and therefore national level data might lose important variation that is necessary for identifying causation. In this paper the effect of

unemployment on hate crime is investigated at the municipality level.[1] Since the access of data over reported hate crimes in Swedish municipalities is incomplete, the research is significantly limited, both regarding available years and data population. The largest concern is that the data is censored and only hate crime statistics over municipalities with 20 or above reported hate crimes per year is available to this research, which are approximately 50 out of Sweden's 290 municipalities for each year during the period 2009 to 2014. This implies that statistics over almost 5/6 of Sweden's municipalities reported hate crimes is undefined S. Westerberg at NCCP was able to confirm that the 20 limit is set to protect individuals from being identified, especially individuals living in small municipalities (mail correspondence, 25 November 2015). The municipality-panel data consists of annual data over all Sweden's 290 counties over the period 2009 to 2014. Data of unemployment is collected from Kolada (Kommun- och Landstingsdatabasen). Total unemployment, youth unemployment and long-term unemployment is used. The unemployment variable used in this research is often referred to total unemployment, i.e. the sum of idle unemployment and unemployed participating in labour market programs. Youth unemployment is referred to as the age group 16-24. An individual in the age group 16-24 is considered long-term unemployed if he/she has been registered at the National Labour Market Board for 100 days or more. Whilst the age group 25-64 is considered long-term unemployed if six months or above. Data of hate crimes is collected from The National Council for Crime Prevention, both via their website and by their yearly reports of hate crime. The paper will use NCCP's definition of hate crime and the data will cover reported crimes with hate crime motive for municipalities and county per 100,000 inhabitants. Data of education and share of immigrants is collected from Kolada (kommun- och landstings databasen). Data over municipality size and inhabitants is also collected from Kolada. A complete list of the included control variables with descriptive statistics is shown in Table A:1 and A:2 in the appendix.[2] Table A:1 in the appendix shows the descriptive statistics over the municipalities with 20 or above reported hate crimes per year and Table A:2 shows the descriptive statistics over municipalities with censored hate crime data. When comparing the results from the two tables, three variables stands out; immigrant share, immigrant share of non EU citizens, and population density. The mean of immigrant share of non EU citizens is more than double the size in municipalities with

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[1] Regressions over the county-level were also conducted, but the variation both within the county and between counties were to limited to be able to draw any conclusions.
[2] The control variables of asylum seekers and unaccompanied refugee children were not included to the models due to too many missing observations. This would lead to too few municipalities with more than 20 reported hate crimes per year in the regressions.

reported hate crime above the threshold than municipalities below the threshold (11.04 compared to 5.11). The same pattern is seen for immigrant share and population density, however the differences are not so extreme (16.69 compared to 10.6 and 88.01compared to 71.43, respectively). A not so surprisingly implication of the two different descriptive statistics is that municipalities above the threshold of hate crime is probably a metropolitan municipality. Since the data is censored below 20 reported hate crimes it is possible to believe that hate crimes are *numerically* more common in larger municipalities than small municipalities.

5. Econometric specification

The choice of econometrical approaches used in this analysis differs from earlier studies in the same field because of the limited data material that is available for this analysis. Since the data at municipality level is left censored below the threshold of 19 reported hate crime per year, the municipalities above the threshold (i.e. with 20 or more reported hate crimes per year) are few in number. Further on, the censored data implies that there are only a few possible econometrical models available when analyzing the data. Since the sample is not randomly distributed the OLS model would yield biased estimates of β and is therefore not an appropriate model. (Verbeek 2012) Instead the data over reported hate crime will be analysed by using a non-linear models; i.e. a Tobit model, sometimes also referred to as the censored regression model. However, the Tobit models used in this analysis were defined by a latent variable model that is similar to the baseline models used by previous studies (Almén and Nordin 2011; Falk, Kuhn and Zweiüller 2011; and Krueger and Pischke 1996).

5.1 The Tobit model

The data is analysed by using a Tobit model, sometimes also referred to as the censored regression model. Since the dependent variable *hate crime* is left censored at the threshold of 19 reported hate crime per municipality and year, this implies that we only know the true value above the threshold, i.e. 20 or more reported hate crimes. For municipalities with reported hate crimes below this threshold we only know that hate crimes is equal or below the threshold of 19. As mentioned earlier, censoring causes problems if it is not accounted for. If only the uncensored values of the data is analysed by an OLS regression, in this case only taking account for municipalities with 20 or above reported hate crimes per year, would produce inconsistent estimators of the β. If instead all observation is analysed by an OLS regression, the estimate of β would still be inconsistent unless there is no censoring. To get

consistent estimators of β, the Tobit model is used when dealing with censored estimates. (Wooldrige 2009)

To define the Tobit model the following latent variable model is used:

$$(Hate_{it})^* = \beta_0 + \beta_1 Unempl_{it} + \beta_2 X_{it} + u_i, u_i | x_i, c_i \sim Normal(0, \sigma^2)$$

$$Hate_{it} = (Hate_{it})^* \ if \ y_i^* > 19$$

$$Hate_{it} = 0 \ if \ (Hate_{it})^* \leq 19$$

Were i and t are indices for municipality and time, respectively. *Hate(it)* is the number of crimes per 100,000. *Unempl(it)* is representing the specific type of unemployment and *X(it)* is a vector of control variables. Under the above assumptions the model describes two things, the first is that the probability that $y_i = 0$ (given x_i), given by:

$$P\{Hate_{it} = 0\} = P\{(Hate_{it})^* \leq 19\} = P\{u_i \leq c_i - x_i\beta\}$$
$$= 1 - \Phi\left[\left(\frac{c_i - x_i\beta}{\sigma}\right)\right]$$

The other is the distribution of $Hate_{it}$ given it is above the threshold of 19 reported hate crimes per municipality and year:

$$E\{Hate_{it} | Hate_{it} > 19\} = x_i\beta + \sigma \frac{\emptyset(x_i\beta/\sigma)}{\Phi(x_i\beta/\sigma)}$$

The result in the above equation makes it clear why it is inappropriate to analyse the uncensored variables by an OLS regression: the conditional expectation of y_i no longer equals $x_i\beta$, it also depends non-linearly on x_i through $\frac{\emptyset(x_i\beta/\sigma)}{\Phi(x_i\beta/\sigma)}$.(Verbeek 2012)

The coefficients in the Tobit model cannot be interpreted in the same way as the coefficients in an ordinary linear regression model. Instead the coefficients are interpreted by considering the marginal effects of changes in the independent variables. The marginal effects can on the other hand be interpreted correspondingly to the coefficients in an ordinary linear regression model. The marginal effect on the expected value of $Hate_{it}$ of a change in one of the independent variables is given by:

$$\frac{\partial E\{Hate_{it}\}}{\partial x_i} = \beta_i \ \Phi(x_i\beta/\sigma)$$

(Verbeek 2012)

6. Results

The results of the six separate Tobit models estimated in this paper are shown in Table 6:1 and the marginal effects estimated on each of the presented Tobit models, respectively, are shown in Table 6:2. Lastly the specification tests of the six Tobit models are shown in Table 6:3.

6.1 Tobit regression model

The results from the Tobit specifications are shown in Table 6:1. The coefficients cannot be interpreted as in ordinary linear regression models, as mentioned in previous section. However, the β coefficient should instead be interpreted as the relative change in the unobserved dependent variable ($Hate_{it}$) due to an absolute change of one unit in one of the independent variables. (Verbeek 2012)

Since the emphasis will be on the interpretation of the marginal effects, this section will only give a brief explanation of the results. As seen in Table 6:1, only one of the unemployment variables has a positive significant effect on hate crimes in the baseline model; long-term unemployment for age group 25-64. The result should be interpreted as a 1 percentage-point increase in long-term unemployment for age group 25-64 would yield a *relative* 4.77 percentage increase in the *unobservable* variable of hate crime in a municipality. Further on the control variables in the baseline model that have significant relative effects on the unobservable hate crime variable are following; Elementary school, SD, Immigrant share (non EU citizen), population density, and logarithmic median net income. The results are somewhat similar for the extended model. However, in this setting only long-term unemployment for age group 16-24 of the three different unemployment measures has a significant, but negative effect on hate crime. All the control variables that are seen in the baseline model stay significant in the extended model except SD and population density. Further on, the added control variables of total immigrant share and share of men in the extended model are significant, but negative. Lastly, for the two different measures of bankruptcy, only bankruptcy with employees is slightly positive significant in all three settings whereas bankruptcy only provides one slightly significant, but negative, effect on hate crimes in the municipality.

Tabel 6:1. Estimating the effect of unemployment and long-term unemployment on hate crimes at the municipality level using Tobit regression models.

	Baseline models			Extended models		
	Equation 1	*Equation 2*	*Equation 3*	*Equation 4*	*Equation 5*	*Equation 6*
Unemployment 16-24	-0.80 (0.72)			-0.65 (0.69)		
Long-term unemployment 16-24		-2.34 (1,67)			-4.02** (1.73)	
Long-term unemployment 25-64			4.77* (2.82)			0.77 (2.86)
Elementary school	-8.94*** (1.10)	-8.91*** (1,10)	-8.99*** (1.11)	-4.89*** (1.17)	-4.67*** (1.16)	-4.94*** (1.18)
SD	1.73* (0.89)	1.97** (0.90)	1.51* (0.90)	1.28 (0.89)	1.72* (0.90)	1.25 (0.90)
Political domination	4.99 (3.23)	3.25 (3.38)	6.41* (3.39)	3.71 (3.12)	1.19 (3.23)	3.74 (3.25)
Share of men				-23.64*** (4.93)	-22.86*** (4.87)	-23.64*** (4.93)
Immigrant share				-8.13*** (1.89)	-8.96*** (1.95)	-8.08*** (1.92)
Immigrant share, non EU citizen	9.98*** (0.82)	9.66*** (0.84)	9.76*** (0.83)	19.40*** (2.57)	19.88*** (2.61)	19.33*** (2.63)
Population density	1.05** (0.34)	1.07** (0.34)	0.94** (0.34)	0.53 (0.57)	0.58 (0.379	0.50 (0.38)
Log median net income	-183.71*** (38.72)	-206.12*** (42.44)	-142.93** (44.65)	-97.18*** (39.51)	-128.91*** (41.94)	-87.53*** (43.98)
Bankruptcy without employees				-0.27 (0.17)	-0.29* (0.17)	-0.26 (0.17)
Bankruptcy with employees				0.45* (0.26)	0.47* (0.26)	0.44* (0.26)

Notes: The dependent variables are reported hate crimes per 100 000 inhabitants. Unemployment is the unemployment rate at the municipality level. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

6.2 Marginal effects of the Tobit model

The results of the marginal effects computed from the three baseline models in Tabel 6:1 show that long-term unemployment for age group 25-64 is the only unemployment variable that has a positive significant effect, at the 10 % level, on hate crimes. Assuming a correct specification, a one-percentage point increase in long-term unemployment for age group 25-64 generates a 1.08 percent increase in hate crimes for municipalities with reported hate crimes above the threshold.

Contrary to the unemployment variables, many of the control variables are more uniform in their pattern. In the baseline model both immigrant share (non EU citizenship) and the logarithmic median net income are highly significant in all three specifications. The immigrant share (non EU citizenship) has a positive significant effect and the logarithmic median net income has a negative significant effect. Further on, the effect of the logarithmic median net income generates relative large decreases on hate crimes, i.e. a one percentage-point increase in logarithmic median net income implies up to a 45.65 percent decrease in hate crimes. Whereas the immigrant share (non EU citizenship) generates a more modest effect, i.e. a one percentage-point increase in immigrant share implies an increase in hate crimes slightly above two percent in all three specifications. Further on, SD, the right-wing nationalist party in Sweden, has a positive significant effect on hate crimes. However, political domination in a municipality, i.e. whether the governance is left-, right-, or cross oriented, does not seem to have any effect of the number of hate crimes. Only one of the specifications has a weak positive significance. The most surprisingly result in the baseline models is the negative sign of elementary school, which implies that municipalities with a higher share of less educated individuals should have fewer hate crimes than a municipality with a higher extent of well educated individuals.

When instead viewing the results of the different unemployment variables effect of the three extended models in Table 6:2 only one of the variables has a significant effect at the 5 % level, that is long-term unemployment for age group 16-24, but this time with a negative sign. Since the results of the different unemployment variables is somehow mixed in both the baseline models as in the extended models, it is unclear if unemployment have any effect on hate crimes and if the effect is positive or negative correlated with hate crimes.

As in the baseline models, the control variables in the extended models show overall a more uniform pattern than the different unemployment variables. None of the control variables that appear in both the baseline models and the extended models changes sign. However, elementary school, logarithmic median net income, and immigrant share (non EU citizenship)

changes with respect to effect. The effect of elementary school and logarithmic median net income is about half the size in all three extended models when comparing to the three baseline models. The effect of immigrant share (non EU citizenship) has instead more than doubled in the three extended models compared to the baseline models. Both SD and political domination have loosed their significance in the extended models (except SD in equation 5 with a positive significance level of 10 %). The extended models include four new control variables. Three of them are significant in all three models; share of men, immigrant share, and bankruptcy with employees, even though the two first show unexpected signs. Both share of men and immigrant share are significantly negative for hate crimes whereas bankruptcy with employees is as expected positively significant for hate crimes. Bankruptcy without employees is only weakly significant in one of the three extended models.

Tabel 6:2. Estimating the marginal effects.

	Baseline models			*Extended models*		
	Equation 1	*Equation 2*	*Equation 3*	*Equation 4*	*Equation 5*	*Equation 6*
Unemployment 16-24	-0.18			-0.15		
Long-term unemployment 16-24		-0.52			-0.91**	
Long-term unemployment 25-64			1.08*			0.18
Elementary school	-2.00***	-1.97***	-2.04***	-1.13***	-1.06***	-1.15***
SD	0.39*	0.44**	0.34*	0.30	0.39*	0.29
Political domination	1.11	0.72	1.45*	0.86	0.27	0.87
Share of men				-5.47***	-5.19***	-5.48***
Immigrant share				-1.88***	-2.03***	-1.88***
Immigrant share, non EU citizen	2.23***	2.14***	2.21***	4.49***	4.51***	4.49***
Population density	0.24**	0.24**	0.21**	0.12	0.13	0.12
Log median net income	-41.01***	-45.65***	-32.43***	-22.55***	-29.00***	-20.57***
Bankruptcy without employees				-0.06	-0.06*	-0.06
Bankruptcy with employees				0.11*	0.11*	0.10*

Notes: The Marginal effects for each independent variable, computed from respective equation from Table 6:1, *** $p<0.01$, ** $p<0.05$, * $p<0.1$ are the p-values from the equations in Table 6:1.

6.3 Specification tests of the Tobit model

To test the restriction of the Tobit models that the coefficients that determine the probability of being censored are the same as those that determine the conditional mean of the uncensored observations a likelihood ratio test is used. The likelihood ratio test (LR test) compares the (restricted) Tobit to the unrestricted log likelihood that is the sum of a Probit and a truncated regression. The regressions of the Probit models and the truncated regression models can be found in Table A:3 and Table A:4, respectively in the appendix. As shown in Table 6:3 the Tobit model cannot be rejected in any of the six model specifications at a 1 percent significant level. This implies that, unless the Tobit model is not correct specified, the Tobit model is an appropriate regression model to analyse the data with. Further on, all six models are tested by estimating the likelihood ratio. The results indicate that the specified models are a significant better fit than they would have been without any dependent variables.

Tabel 6:1: Estimating specification tests of the Tobit models shown in Tabel 6:1

	Baseline models			*Extended models*		
	Equation 1	*Equation 2*	*Equation 3*	*Equation 4*	*Equation 5*	*Equation 6*
Likelihood ratio	494.29***	495.21***	493.59***	563.64***	568.25***	562.82***
LR test	318.79***	316.25***	313.08***	464.92***	463.67***	468.14***

7. Discussion

The results from the baseline models and the extended models are somehow mixed concerning the effect and sign of the different unemployment variables on hate crime. All three variables were also sensitive to the specification of the model. However, this result is not surprising since the evidence from earlier research on this topic is somewhat ambiguous among the different studies, as described above in section 3. Because of the mixed results in this study it is not possible to either deny or confirm a relationship between hate crimes and unemployment.

In contrast to the unemployment variables, the regressions find a positive relationship between the immigrant share (non EU citizens) and hate crime. The point-estimate of immigrant share (non EU citizens) is between 2.1 and 4.5. This implies that there is empirical evidence for at least one of the theories about the power of numbers described in Section 2.1. From the latent variable model it follows that the relationship between the dependent variables and the independent variables is to be linear and therefore a combination of Blalock's two different threat theories might be in consideration. If this is the case it implies that a part of the majority population, i.e. the Swedish population, considers the growing immigrant population, especially immigrants with non EU citizenship, as a political and an economical threat. This in its extreme forms risks leading to hate crimes against the immigrant population. This result is in line with most of the resent studies on this topic (Gang et al. 2002; Rydgren and Ruth 2011; Green et al. 1998)

Further on, the logarithmic median net income has a negative significant relationship with hate crimes, with a point-estimate between -45.7 and -20.6. A possible implication is that individuals with limited economic conditions develop feelings of economic insecurity. According to Siedler (2006) are individuals who develop feelings of economic insecurity more adoptive to right-wing extremism and xenophobia. This in turn might imply individuals with limited economic conditions are more threatened by immigrants in both economical and political terms and are therefore more prone to commit hate crimes. This result therefore gives additional proof toward Blalock's two different threat theories.

However the effect of political orientation is not clear-cut, the effect of Sweden Democrats (SD), the right-wing nationalist party in Sweden, seems to be somewhat sensitive to the specifications, whereas political domination do not seem to have any, or only slightly positive significant effect. According to Rydgren and Ruth (2011) is the electoral support for the

Sweden Democrats negatively correlated with the average level of education and with the Gross Regional Product per capita, and positively correlated with the unemployment rate of the municipality. This could imply that the voters of the Sweden Democrats are more sensitive to economic insecurity and are therefore more prone to develop the emotion of anger when facing strain and therefore in the risk group of committing hate crime. However the results in this study can neither deny nor confirm that this is the case.

The major concern with the paper was the insufficient data supply. Since the National Council of Crime Prevention has decided to censor the data material over hate crimes in Sweden, the available hate crime data is very limited. Because of the left censoring at 20 reported hate crimes per year and municipality; only hate crime data over approximately 50 municipalities are left. The left censoring also implies that it is mainly larger municipalities, as seen when looking at the population density in Table A:1 and Table A:2, that is available in this paper. Further on, he demarcation at 20 reported hate crimes per municipality and year is ambiguous; there is no further explanation to how just the number of 20 is developed and how this specific censoring should protect individuals from being identified.[3] The censored data affected the investigation of hate crimes by substantially limit available econometric models. If instead all data over hate crimes in the municipalities of Sweden were available it is possible to consider a different outcome of the regressions.

8. Conclusion

With a growing xenophobia and racism in both Sweden and the rest of Europe the social climate for immigrants becomes tougher and more difficult. There are many clear evidences of this; one is the growing popularity for right-wing extremism parties in Sweden and Europe. The Sweden Democrats more than quadrupled their electoral support from 2006 to 2014. Another is the increased incidence of hate crime. As mentioned in the introduction; right-wing extremism and hate crime are severe issues in a society. Not only it questions the equality and integrity of the population in a society, it creates an "us" and "them" culture which prevents integration. It is therefore of great concern to find the driving forces behind xenophobia, racism, and hate crime. Since this study exclusively investigated the causes of hate crime no conclusions can be made of the two others. In this study no clear evidence was found on the relationship between unemployment and hate crime. However the data over hate crime was

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[3] The National Council of Crime Prevention was consulted about the implemented left censoring at 20 reported hate crimes in a municipality but they did not give any answer to this specific question.

limited, both regarding available municipalities and available years. Interestingly is that immigrant share (non EU citizens) seems to be highly positive correlated with hate crime and that logarithmic median net income seems to be highly negative correlated with hate crime. Both the results points at evidence for the threat theory by Blalock.

A possible interpretation for these two relationships is that individuals' falling outside the society finds new targets to direct their anger against to limit strain of failure. In a society, there are silently accepted values and ideas that point out certain groups as undesirables, a strain or a sickness upon society. When these ideas take an ethnic dimension, members of minority groups become legitimate targets by certain frustrated individuals. Such individuals are disaffected and have usually fallen outside society or about to. They might take upon themselves a cause to restore order, take revenge and even do a good action for society by attacking hated minority groups in ways they see fit. This results in a great deal of problems for the society. If this interpretation is correct, there are some governmental implementations that might be taken into consideration for preventing hate crimes. First of all the government needs to attack and change those values that point out ethnic minorities as undesirables. Another suggestion is the legal aspect, Sweden has strong legislation against hate crimes but authorities should investigate and prosecute hate crimes with even greater diligence. A third suggestion is to improve the integration of both the minority group but also the disaffected individuals, in the society. However, it needs to be mentioned that attitude changes and integration takes time and the expectations must be reasonable.

Because of the limited data material in this paper and the small amount of previous research about hate crime and its underlying origin, future research is needed. Especially studies investigating the causes of hate crime in Sweden, since this is the first study of its kind in Sweden. Hopefully the availability of data material will be better in the future; covering extended years and municipalities. This would imply a more nuanced picture and understanding of the hate crimes patterns than this paper is able to provide.

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Appendix

Table A:1. Descriptive statistics, municipality level

Reported hate crimes > 19	Mean	Maximum	Minimum	Std, Dev,	Observations
Share of men	0,50	0,51	0,49	0,01	256
Unemployment 16-24	9,19	26,30	1,40	3,57	256
Asylum seekers	7,41	46,00	0,90	7,23	57
Refugee children	48,95	416,00	6,00	66,39	57
Elementary school	13,25	22,00	5,20	3,45	256
Hate crime	60,51	295,00	17,00	26,71	256
Immigrant share	16,69	39,70	4,80	7,26	256
Immigrant share non EU	11,04	29,00	2,50	5,27	256
Residents^2	1390253	25741417	49,00	4793453	205
Residents km^2	502,76	5073,60	7,00	1069,14	205
Bankruptcy, no employees	53,27	1050,00	2,00	136,96	256
Bankruptcy, no employees	44,38	701,00	2,00	91,81	256
Long-term unemployment 16-24	3,91	9,40	0,60	2,03	256
Long-term unemployment 25-64	4,08	8,90	1,00	1,43	256
Log median net income	12,21	12,54	12,03	0,09	199
Median net income	201716	279042	167219	18588	199
SD*	6,48	22,60	1,30	4,04	256
Political domination**	1,11	2,00	0,00	0,91	256
Population density	88,01	100,00	56,70	9,48	256

Notes: SD* stands for the right-wing nationalist party in Sweden, Sweden Democrats. Political domination** with 0 = Left Party, 1 = Cross Party, 2 = Right Party.

Table A:2. Descriptive statistics, municipality level.

Reported hate Crimes <19	Mean	Maximum	Minimum	Std. Dev.	Observations
Share of men	0,51	0,54	0,48	0,01	1194
Unemployment 16-24 (%)	9,38	22,60	1,00	3,61	1194
Asylum seekers (%)	14,95	128,80	0,10	18,83	233
Refugee children (%)	18,33	53,00	4,00	7,49	233
Elementary school (%)	15,66	27,30	3,40	3,51	1194
Hate crime	0,00	0,00	0,00	0,00	1194
Immigrant share (%)	10,60	40,10	3,90	4,56	1194
Immigrant share non EU	5,11	19,20	1,20	2,45	1194
Residents km^2^2	31737	2178871	0,04	192391	955
Residents km^2	64,97	1476,10	0,20	165,97	955
Bankruptcy, no employees	5,56	50,00	0,00	5,23	1194
Bankruptcy, no employees	5,38	65,00	0,00	5,03	1194
Long-term unemployment 16-24 (%)	4,94	14,90	0,20	2,27	1194
Long-term unemployment 25-64 (%)	3,54	8,60	0,80	1,30	1194
Log median net income	12,16	12,65	11,94	0,11	961
Median net income	192079	310954	153076	21554	961
SD* (%)	5,66	23,90	0,40	4,26	1194
Political domination**	1,07	2,00	0,00	0,90	1194
Population density	71,43	99,90	31,00	13,68	1194

Notes: SD* stands for the right-wing nationalist party in Sweden, Sweden Democrats. Political domination** with 0 = Left Party, 1 = Cross Party, 2 = Right Party.

Table A:3. Estimating the effect of unemployment and long-term unemployment on hate crimes at the municipality level using truncated regression models.

	Baseline models			Extended models		
	Equation 1	*Equation 2*	*Equation 3*	*Equation 4*	*Equation 5*	*Equation 6*
Unemployment 16-24	-0.22 (0.32)			-0.16 (0.29)		
Long-term unemployment 16-24		-1.19 (0.82)			-0.22 (0.78)	
Long-term unemployment 25-64			-2.93** (1.25)			-1.89 (1.18)
Elementary school	1.62** (0.53)	1.67*** (0.53)	1.72*** (0.53)	1.56*** (0.51)	1.58*** (0.52)	1.69*** (0.52)
SD	-0.18 (0.47)	0.01 (0.49)	0.14 (0.48)	-0.24 (0.43)	-0.20 (0.45)	-0.03 (0-45)
Political domination	-1.52 (1.49)	-2.17 (1.52)	-2.88* (1.56)	-2.20 (1.35)	-2.37* (1.39)	-3.03** (1.42)
Share of men				0.44 (2.33)	0.54 (2.34)	0.69 (2.32)
Immigrant share				2.86*** (0.86)	2.79*** (0.88)	2.51*** (0.88)
Immigrant share, non EU citizen	1.69*** (3.39)	1.51*** (0.53)	1.75*** (0.38)	-2.38** (1.20)	-2.32* (1.22)	-1.89 (1.23)
Population density	-0.34*** (0.22)	-0.33 (0.22)	-0.27 (0.22)	-0.37* (0.20)	-0.37* (0.20)	-0.32 (0.20)
Log median net income	28.91 (19.66)	19.42 (20.88)	11.05 (20.97)	-	-	
Bankruptcy without employees				0.06 (0.06)	0.06 (0.06)	0.05 (0.06)
Bankruptcy with employees				-0.02 (0.08)	-0.02 (0.08)	-0.01 (0.08)

Notes: The dependent variables are reported hate crimes per 100 000 inhabitants. Unemployment is the unemployment rate at the municipality level. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table A:4. Estimating the effect of unemployment and long-term unemployment on hate crimes at the municipality level using Probit regression models

	Baseline models			Extended models		
	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5	Equation 6
Unemployment 16-24	-0.02 (0.02)			-0.001 (0.02)		
Long-term unemployment 16-24		-0.09** (0.04)			-0.09* (0.05)	
Long-term unemployment 25-64			0.06 (0.06)			-0.08 (0.08)
Elementary school	-0.24*** (0.03)	-0.25*** (0.03)	-0.24*** (0.03)	-0.10** (0.04)	-0.10*** (0.04)	-0.10** (0.04)
SD	0.02 (0.02)	0.03 (0.02)	0.02 (0.02)	0.01 (0.02)	0.02 (0.02)	0.01 (0.02)
Political domination	0.17** (0.07)	0.11 (0.08)	0.18** (0.08)	0.10 (0.09)	0.07 (0.01)	0.09 (0.10)
Share of men				-0.21 (0.14)	-0.20 (0.14)	-0.20 (0.14)
Immigrant share				-0.10** (0.05)	-0.12** (0.05)	-0.11** (0.05)
Immigrant share, non EU citizen	0.26*** (0.02)	0.25*** (0.02)	0.26*** (0.02)	0.29*** (0.07)	0.31*** (0.07)	0.30*** (0.07)
Population density	0.02*** (0.01)	0.02** (0.01)	0.02*** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Log median net income	-5.55*** (0.92)	-6.68*** (1.05)	-4.94*** (1.09)	-	-	-
Bankruptcy without employees				0.07*** (0.02)	0.07*** (0.01)	0.07*** (0.02)
Bankruptcy with employees				0.03** (0.01)	0.03** (0.01)	0.03** (0.01)

Notes: The dependent variables are reported hate crimes per 100 000 inhabitants. Unemployment is the unemployment rate at the municipality level. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$