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Do Moral Values Moderate the Relationship Between Immigrant-School Concentration and Violent Offending? A Cross-Level Interaction Analysis of Self-Reported Violence in Sweden

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ABSTRACT

The study examines whether school-level immigrant concentration is related to students' involvement in violence, and whether students' moral values moderate the relationship between immigrant concentration and violence. The study is based on six nationally representative school surveys conducted by the Swedish National Council for Crime Prevention between 1999 and 2011, with a combined sample of 38,711 adolescents. We have combined different surveys to create one large pooled data set to evaluate segregation effects at the school level. Multilevel linear probability models are used to examine cross-level interaction effects. This study shows that contextual effects impact students differently, and that the relationship between immigrant concentration and violence is considerably stronger for adolescents with weak personal moral values. The paper provides empirical support for the differential vulnerability hypothesis. Policy and practice would benefit from a focus on the further development of programs and interventions that target personal moral values, not least in schools.

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violent offending; school level; immigrant concentration; moral values; cross-level interaction

Background

Ethnic school segregation has become a growing concern among policy makers in western countries, as many recent studies have shown that high concentrations of immigrant students are associated with poor educational achievement and attainment (Szulkin and Jonsson 2007), and greater inequality in future outcomes such as employment, income, neighborhood of residence, health, and criminality (Billings, Deming, and Rockoff 2014). Against this background, policy makers are considering ways to desegregate schools in order to improve both integration and levels of achievement among immigrant students (Burgess, Wilson, and Lupton 2005; Nielsen and Andersen 2019).

Over recent decades, Sweden has undergone substantial demographic change, from an ethnically homogeneous to a multi-cultural society. In addition, other societal developments, such as residential segregation, rising income inequality, and educational reforms introduced in the early 1990s, have led to increased concentrations of students of immigrant background in certain schools (Hansen and Gustafsson 2016; Hennerdal, Malmberg, and Andersson 2020; Trumberg and Urban 2021).

Despite extensive research having focused on the adverse effects of segregated schools on the academic achievement of students, relatively little research has focused on the relationship between immigrant concentration in schools and crime. Schools constitute an important ecological setting that

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may produce lasting behavioral effects by directly or indirectly shaping individuals' exposure to criminogenic environments (Wikström 2006). Young people spend a considerable amount of time in school during key developmental stages, providing an arena not only for formal learning and education, but also for informal influences (Hirschfield 2018).

The relationship between immigrant concentration and crime is complex and has been the subject of much debate. Empirical studies from the United States and Europe provide mixed evidence on whether the spatial concentration of immigrants increases or decreases crime rates at different levels (Bell and Machin 2013; Ousey and Kubrin 2018). However, in most Nordic countries today, crime is on average more prevalent among immigrants (Adamson 2020; Skardhamar, Aaltonen, and Lehti 2014; Vasiljevic, Svensson, and Shannon 2020). Furthermore, a substantial body of empirical research indicates that the segregation of racial and ethnic groups from mainstream society, especially when this results in geographical concentrations of disadvantaged groups, may contribute to heightened levels of offending and violence (Feldmeyer 2010; Krivo, Peterson, and Kuhl 2009; Peterson and Krivo 2009; Sandahl 2021; Ulmer, Harris, and Steffensmeier 2012).

In Sweden, as in many other countries, the situation of immigrants has been closely linked to the issue of concentrated disadvantage, as people with migrant backgrounds mainly come from poorer countries, lack economic, educational, and cultural resources, and tend to sort into more disadvantaged neighborhoods and schools (Szulkin and Jonsson 2007). Among the Nordic countries, spatial isolation trends are most pronounced in Sweden, where ethnic residential segregation in the major cities is among the most extreme in Europe (Östh, Clark, and Malmberg 2015).

Theoretical explanations focused on school and neighborhood contextual effects suggest that immigrant concentration is not directly related to crime, but rather indirectly through its impact on the criminogenic structural conditions (i.e., population heterogeneity and residential mobility) that serve to destabilize communities and schools and decrease social cohesion and social control (Light and Miller 2018; Lyons, Vélez, and Santoro 2013; Sampson and Groves 1989; Shaw and McKay 1942). Researchers have also suggested that immigrant-dense schools tend to be more disadvantaged in terms of resources, which may in turn influence student behaviors such as crime and violence, by limiting opportunities among student populations and creating strain (Op de Beeck, Pauwels, and Put 2012; Sandahl 2021).

In general, studies suggest that school contextual factors that are usually associated with immigrant concentration, such as poor school organization, school social climate, and disorder, may influence criminal behavior (Groß, Hövermann, and Messner 2018; Peguero et al. 2021). However, the effects of school context on measures of self-reported crime are generally not large, and when such contextual effects are found, they are usually found for serious offenses such as violence (Pauwels 2011; Op de Beeck, Pauwels, and Put 2012; Pauwels 2008; Pauwels and Svensson 2015). This does not mean that schools are unimportant in relation to crime, but rather suggests that there may be a differential effect. For example, segregation may lead to some schools may having a higher rate of offenders, thus making exposure to delinquent peers one plausible moderator (Pauwels and Svensson 2015).

Despite this research on contextual effects, fewer studies have focused on the complex interplay between explanatory variables at different levels, and their association with offending. The school-effects literature in general emphasizes the importance of moderation models (Fairchild and McQuillin 2010). Such models focus on third variable effects, such as individual characteristics, that may increase or suppress the impact of contextual school variables such as immigrant concentration.

One important individual-level moderator of the relationship between structural school characteristics (and areas where people spend their leisure time) and offending may be youths' attitudes toward delinquency, usually referred to as moral values within the context of criminology (Wikström et al. 2012). The personal moral values concept refers to a set of convictions about whether behaviors are right or wrong in a given set of circumstances. Moral values have long had a significant role in criminological theory, albeit under different names. Both Sutherland (1947) and Hirschi (1969) viewed moral values or attitudes as a key factor in the explanation of crime at the individual level. Social control theories stress the importance of general belief systems, while learning theories stress exposure

to variations in definitions favorable to the violation of law (Akers and Jennings 2019). More recently, Wikström's Situational Action Theory (Wikström et al. 2012) and Kroneberg, Heintze, and Mehlkop (2010) version of rational choice theory assume that individuals vary in their levels of morality, and that strong conventional moral values override other potential influences on criminal behavior, such as situational inducements or deterrence. In general, it is fair to say that contemporary research is paying increasing attention to the concept of personal moral values (Kroneberg, Heintze, and Mehlkop 2010; Wikström and Treiber 2019).

Theoretically, it has been claimed that environmental factors are important predictors of individual offending, but that the environment may have differing effect on offending depending on individual characteristics (Wikström et al. 2012). To date, however, few studies have examined whether the association between offending and the contextual conditions of schools may differ depending on individual characteristics, such as moral values (see Kafafian, Botchkovar, and Marshall 2022 for an exception). From a policy perspective, it is important to recognize that contextual effects are seldom uniform across individuals, and that studies and intervention programs have shown that even in the absence of a statistical effect within a population at large, interventions may nonetheless have a powerful impact for a subpopulation with a specific risk profile (Fairchild and McQuillin 2010). For both school staff and policy makers, this is important knowledge in relation to the provision of better services and interventions to students who are at the greatest risk of violent behavior.

Against this background, this study examines whether the level of immigrant concentration may have a differential impact on individual student behavior, in the form of violence, depending on the strength of students' moral values. We explicitly investigate the idea of a differential effect based on moral values, since such values may be seen as a strong first line of defense against criminal behavior. We therefore hypothesize that the effect of immigrant concentration will be more pronounced for individuals with weaker moral values.

Methods

Participants

The study is based on six waves of a nationally representative school survey of year nine youth, (aged 15 at the time of data collection), conducted by the Swedish National Council for Crime Prevention between 1999 and 2011. The survey was conducted every second year between 1999 and 2005, and thereafter every third year. The surveys are based on systematic samples of schools with year-nine classes. The data have primarily been collected in December, and the questionnaires are completed during lesson time. For the surveys conducted between 1999 and 2011, the response rate varied between 87% and 92%. In each survey, between 6,003 and 8,203 students have anonymously completed a questionnaire containing questions about their social situation, family, school, peer group, and leisure activities. The six subsamples combined produce a total sample of 41,730 adolescents at 636 schools. This makes this data set unique. Following listwise deletion of missing values, the analyses below are based on 38,711 students at 636 schools.

Since the youths provided informed consent and completed the questionnaire anonymously, we see no general ethical problems linked to this study. We would nonetheless like to emphasize that studies such as this, which are based on differentiating between different groups of youths, are always associated with a risk of stigmatizing certain groups. We are aware of this risk but feel that it must be balanced against the benefits that may accrue from improved knowledge in this area. The present study was approved by the Regional Ethics Committee at Lund University (Dnr 2015/784).

Measures

Violent offending is a measure comprising six different items with an alpha that varied between .58 and .69 across the six data waves, asking how many times the respondents had

engaged in different forms of reactive aggressive behavior, that are prohibited by law, during the past 12 months. Since there were few responses in the upper part of the scale (less than 1%), a dichotomous version of this variable (0 – never, 1 – one or more times) is employed in the statistical analysis.

Personal moral values refer to personal views about how right or wrong respondents evaluated six descriptions of rule-breaking, and is represented by an additive index based on six items measuring whether the respondents considered it acceptable for their friends to commit different criminal acts (shoplifting, car theft, spraying graffiti, truancy, alcohol and cannabis use). This operational measure is congruent with the conceptions of moral beliefs used in control theory (Hirschi 1969). Given the impact of peers on shaping standards and behavior in adolescents, the attitudes toward the actions of friends hold great significance in influencing one's own behavioral inclinations (Megens and Weerman 2012). It is assumed that the moral assessments of friends' actions reflect the collective norms adopted by adolescents, which can potentially influence their probability to engage in delinquent behavior (Svensson and Oberwittler 2021). Cronbach's alpha for this scale varies between .85 and .88 across the six data waves. High scores indicate more delinquent attitudes. For this study, the measure was categorized into three groups – strong, medium, and weak moral values. Strong morality is defined as one standard deviation above the mean, medium morality as within one standard deviation of the mean, and weak morality as one standard deviation below the mean.

Immigrant background is a measure coded zero when both parents are born in Sweden and one if at least one of the parents was born abroad. While this measure has some limitations, it is congruent with previous studies aimed at understanding the effect of immigrant background as a marker of vulnerability that extends beyond socio-economic disadvantage, and as a marker for out-group social categorizations (Pauwels and Svensson 2009).

Parental employment status is a measure of whether the mother and the father were in work. The variable is coded as 0 if both parents were employed and 1 if either the mother or father, or both, were not in employment. The definition of not in employment includes cases where the mother, father, or both were seeking work, studying, on a disability pension or early retirement benefits, or were involved in other labor-market measures. While we acknowledge this is a rather rough measure, we have chosen to dichotomize it due to low response rates in some of the categories.

Sex is a measure coded as zero for girls and one for boys.

Immigrant concentration is a measure defined as the proportion of students at each school with at least one parent born abroad.

Socioeconomic concentration is a measure defined as the proportion of students at each school with at least one parent not in employment.

Analytical approach

Given the nested structure of the data, we estimate two-level mixed effects models. Our outcome, violent delinquency, is a dichotomous measure. However, since log-odds ratios cannot be directly compared across models using different explanatory variables (Mood 2010), and in line with prior research (e.g., Helbling, Stephan, and Schmid 2020), we employ multilevel linear probability models. Furthermore, the use of logistic regression for models that include interactions can involve considerable problems (Ganzach, Saporta, and Weber 2000).

We also include a random slope for the cross-level interaction term (i.e., we allow the slopes for attitudes toward crime to vary randomly across schools), which is necessary to produce a conservative estimate of the parameters and t-ratios (Heisig and Schaeffer 2019). Analyses are based on the maximum likelihood (EML) estimator, using robust estimation, and log likelihood statistics are used to compare models.

The two-level probability model can be represented as follows:

Level 1 (Individual Level)

$$Violence_{ij} = \beta_{0j} + \beta_{1j} \times Sex_{1j} + \beta_{2j} \times Immigrant_{ij} + \beta_{3j} \times Parental\ Unemployment_{ij} + \beta_{4j} \times Personal\ Moral\ Values_{ij} + e_{ij}$$

Level 2 (School Level)

$$\beta_{0j} = \gamma_{00} + \gamma_{01} \times Prop\ Parental\ Unemployment_j + \gamma_{02} \times Prop\ Immigrant\ Background_j + u_{0j}$$

$$\beta_{4j} = \gamma_{40} + \gamma_{41} \times Prop\ Immigrant\ Background_j + u_{4j}$$

Where:

- Violence_{ij} represents the violence outcome for individual *i* in school *j*.
- Sex_{ij}, Immigrant_{ij}, ParentalUnemployment_{ij}, and PersonalMoralValues_{ij} are individual-level predictor variables.
- PropParentalUnemployment_j, and PropImmigrantBackground_j are school-level predictor variables.
- β_{0j} is the random intercept at the school level for the violence outcome.
- β_{4j} is the random slope at the school level for the effect of personal moral values on violence outcome.
- γ₀₀, γ₀₁, γ₀₂, γ₀₃, γ₄₀, and γ₄₁ are fixed effects at the school level.
- e_{ij} represents the individual-level residual error term.
- u_{0j} represents the random intercept error term at the school level.
- u_{4j} represents the random slope error term at the school level.

Results

We have estimated a series of multilevel linear probability models, whose results are reported in Tables 1, 2. We first calculated the intraclass correlation based on the unconditional model (Model 1 in Table 2), according to which about 3% of the variance in self-reported violent delinquency could be attributed to the school-level. Although this percentage may seem small, it corresponds with the findings observed in similar studies. Previous research has demonstrated that the variation in crime rates between schools typically ranges from 2 to 10% Op de Beeck, Pauwels, and Put (2012). In Model 2, the individual-level variables are added: personal moral values, and a control for gender, immigrant background and parental unemployment

Table 1. Descriptive statistics.

Variable Name	Percentage	Mean	Min	Max
<i>Dependent variable</i>				
Violence (1 = Violent)	15.7%			
<i>Level 1</i>				
Gender (1=Boys)	50.2%			
Immigrant status (1=Immigrant background)	20.7%			
Parental unemployment (1=Unemployed)	21.2%			
<i>Moral values</i>				
Strong = 3	17.8%			
Medium = 2	64.1%			
<i>Level 2</i>				
% Immigrant background		20.3%	0.0%	100.0%
% Parental unemployment		20.9%	0.0%	100.0%

Table 2. Violence, moral values and immigrant concentration. Multilevel linear probability models (students = 38,711/Schools = 636).

Level and variable	Model 1	Model 2	Model 3	Model 4
Individual level				
Intercept	0.161 (0.003)***	−0.007 (0.008)***	−0.029 (0.009)***	−0.013 (0.009)
Weak moral values ^a		0.317 (0.007)***	0.318 (0.007)***	0.288 (0.012)***
Medium-strength moral values ^a		0.074 (0.004)***	0.076 (0.004)***	0.054 (0.006)***
Immigrant background		0.064 (0.005)***	0.056 (0.005)***	0.057 (0.005)***
Parents not in employment		0.048 (0.005)***	0.046 (0.005)***	0.047 (0.005)***
Gender		0.096 (0.004)***	0.096 (0.004)***	0.096 (0.004)***
School level				
Prop. immigrants			0.095 (0.02)***	0.017 (0.021)
Prop. not in employment			0.011 (0.03)	0.018 (0.029)
Cross level interaction				
Prop. immigrants X Moral Weak				0.139 (0.041)***
Prop. immigrants X Moral Medium				0.098 (0.024)***
Random effects				
Residual variance	0.130 (0.001)***	0.113 (0.001)***	0.113 (0.001)***	0.113 (0.001)***
Intercept	0.003 (0.000)***	0.001 (0.000)***	0.001 (0.000)***	0.001 (0.000)***
Slope		0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**
−2LL	31269.490	25863.857***	25827.828***	25821.193*

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$.

Note: Controlling for year of survey (the last three models).

^aStrong moral values is the reference category in these analyses.**Table 3.** The association between immigrant concentration and violence at different levels of moral values. Multilevel linear probability models. Adjusted for controls.

	Moral values		
	Weak	Medium	Strong
Prop. Immigrants	0.165***	0.098***	0.051*

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$.

status. The model shows that for students with weak and mid-range personal moral values, the probability of violence is 31.7 and 7.4% points higher respectively than for students with strong personal moral values. This model also included a random slope, which shows that personal moral values vary across schools. In Model 2 we also added the school-level variables, immigrant concentration, i.e., the proportion of students from an immigrant background, and our control for school-level parental unemployment. The model shows that as the proportion of students from an immigrant background increases, the probability of violent delinquency increases by 9.5% points. In the final model (Model 4), we test whether the association between immigrant concentration and violence is contingent on the level of students' personal moral values. The cross-level interaction shows that immigrant concentration has a significantly stronger association with violence for students with weak and mid-range personal moral values, than for students with strong personal moral values. The log likelihood statistics indicate that this cross-level interaction model improves the fit to the data, ($\chi^2(2) = 6.632$, $p < 0.05$).

To examine the nature of the interaction between immigrant density and personal moral values in more detail, we divided the sample into three subgroups (strong, mid-range, and weak personal moral values) and estimated three multilevel linear probability models, one for each subgroup, using immigrant concentration as the predictor of violence (and including the same control variables as in the models in Table 2). The results are presented in Table 3 and show that as the concentration of immigrants increases, the probability of violence increases by 16.5 and 9.8% points among students with weak and mid-range personal moral values respectively, while the association is not as pronounced among students with strong personal moral values.

Sensitivity analysis

In order to investigate the robustness of our findings we estimated our LPM models separately for larger vs. smaller municipalities. The results showed that the relationship between immigrant concentration and violence was not significant for schools in smaller municipalities, which is probably due to the low concentration of immigrant students in small municipalities.

Discussion and conclusion

This study has investigated whether there are differences in the association between school-level immigrant concentration and violence depending on the strength of individual moral values. Many studies have addressed whether delinquent behavior is associated with various aspects of the school context. However, most studies tend to treat individuals as homogenous, and criminologists have paid little attention to how school-context may have a differential impact on different individuals. To our knowledge, this is the first Scandinavian self-report study to investigate how school-immigrant concentration may have a differential impact on individuals, depending on their personal moral values.

The results from the study, which is based on a large, combined sample of 38,711 adolescents, have revealed the existence of cross-level contextual effects. There is an association between the level of immigrant concentration in schools and violent delinquency; however, individual predictors are more important. This study shows that contextual effects impact students differently, and that the relationship between immigrant concentration and violence is considerably stronger for adolescents with weak personal moral values, and is less pronounced for adolescents with strong moral values. Previous research has suggested that strong moral values provide protection against delinquent behavior, although the protective effect of moral values may wane if individuals are exposed to crime-encouraging school contexts over longer periods of time (Kafafian, Botchkovar, and Marshall 2022; Wikström and Treiber 2019; Wikström et al. 2012).

Our findings are in line with integrated theories of crime (e.g., Laub and Sampson 2003; Wikström et al. 2012), which suggest that the impact of contextual factors is relatively indirect and is moderated via individual-level mechanisms, such as moral values. The development of moral values begins during the process of primary socialization, in which the family context is of critical importance (e.g., Abell and Gecas 1997). The secondary socialization acquired in school and via the peer group may strengthen or weaken these values (e.g., Elkin and Handel 1989).

The role played by contextual factors, such as segregation, is complex, and it can be difficult to determine which variables are important in addressing this topic. However, studies have commonly focused on concentrations of immigrants and ethnic minorities as an indicator of segregation, since ethnic segregation is intimately linked to economic and social segregation. Further, most segregation studies have examined the share of the population with an immigrant background at the neighborhood level, which might have produced different results. However, school segregation is a growing problem in several countries, and previous research has shown that differences associated with the ethnic composition of a given context are more pronounced in schools than in neighborhoods, and that the association between social context and serious adolescent delinquency is significantly stronger at the school level than at the neighborhood level (Oberwittler 2007).

In this study, the proportion of students in schools with parents who are not in employment was not significantly related to violent offending, which suggests that school-level socioeconomic disadvantage is not important in relation to individual-level violent offending. Some previous studies have suggested that school-level socioeconomic status may not be important for violent offending (DiPietro, Slocum, and Esbensen 2015), although research has found higher levels of violent offending among adolescents at disadvantaged schools, when school disadvantage is measured using several different indicators such as parental educational level and school deprivation (Sandahl 2021). The

parental employment status measure used in this study is generally considered to be a rough measure of socioeconomic status, which may have affected the study's results.

There are some limitations to this study. Firstly, the study is cross-sectional. This means that it is only possible to assess the relative strength of contextual factors in relation to individual differences in offending, and no real casual effects can be demonstrated.

Secondly, the effects of school disadvantage may be different in different developmental phases (during the life course) and may differ by sex. Future research should take this into account, since moral values develop over the life course.

Thirdly, we have employed a rough distinction between native and immigrant students. This distinction disregards generational as well as ethnic differences within the immigrant group. However, a separate analysis for each ethnic minority group would have lowered the reliability of our analysis, since many immigrant groups are small and not suitable for separate statistical analysis. At the same time, using immigrants as a single category is consistent with many previous studies (e.g., Agirdag 2010; Vervoort, Scholte, and Overbeek 2010). Nonetheless, future research should if possible distinguish between different immigrant groups.

This paper has policy relevance, although it is always difficult to translate empirical research into public policy (Manski 2013). Given the amount of time that children and adolescents spend in schools, it is clear that the negative consequences of segregation need to be tackled. However, policy and practice would benefit from a focus on the further development of programs and interventions that target personal moral values, not least in schools. Although schools do not have crime prevention as their principal task, they do have a unique opportunity to work with young people's norms and attitudes toward violence and interpersonal behavior.

In conclusion, our findings suggest that levels of immigrant concentration in Swedish schools do have an impact on young people's violent behavior and that this impact is greatest for students with poor moral values. As school segregation continues to increase in many countries, it is becoming important to understand its role in relation to the mechanisms associated with crime and violence among young people. The use of an integrated individual – context model provides a compelling framework for understanding this relationship. Future research should include a temporal and developmental perspective that clarifies the time-course and effects of the individual-context relationship. Understanding such individual – context interactions may significantly increase our understanding of pathways into, and the prevention of, violent behavior among adolescents.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

Data are available on specific request for researchers. Such requests should be addressed to Zoran.vasiljevic@mau.se.

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