Neighbourhood effects on youth's achievements: the moderating role of personality

De invloed van de buurt op de prestaties van jongeren: verschillen per persoonlijkheidstype
[met een samenvatting in het Nederlands]

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit Utrecht
op gezag van de rector magnificus, prof.dr. G.J. van der Zwaan,
ingevolge het besluit van het college voor promoties
in het openbaar te verdedigen op
vrijdag 5 december 2014 des middags te 4.15 uur

door

Jacob Gerard Nieuwenhuis

geboren op 9 mei 1986
te Oostwold

Promotoren:
Prof.dr. P. Hooimeijer
Prof.dr. W. H. J. Meeus

CONTENTS

CHAPTER 1

Introduction

BACKGROUND

Ever since the publication of Wilson's (1987) *The truly disadvantaged*, there has been an increasing interest in so-called 'neighbourhood effects', i.e., the idea that individuals' life chances are influenced by the characteristics of the neighbourhood they live in. Especially for adolescents this effect might be quite prominent, as their mobility and friend groups are more likely to be restricted to more proximate areas compared to older aged groups. This group is most likely to be susceptible to neighbourhood influences; on educational outcomes during adolescence and on occupational outcomes during young adulthood. This effect should persist even when taking into account other important social contexts such as the family and the school. Neighbourhood effects have not only gained attention from academic scholars [see, e.g., Dietz, 2002; Durlauf, 2004; Ellen & Turner, 1997; Galster, 2002; van Ham et al., 2012; 2013], but also from policy makers. Through tenure-mixing, policy makers aim to mix neighbourhood populations based on income. This practice should decrease segregation of disadvantaged groups in the neighbourhood, therewith decreasing the potential neighbourhood effect [Kleinhans, 2004; Musterd, 2002].

One persisting problem in the research of neighbourhood effects on adolescents' socio-economic outcomes is the variation in research findings between different studies. This finding-heterogeneity encompasses weak and strong neighbourhood effects, as well as insignificant effects and even effects with unexpected (reversed) signs. Besides, neighbourhood research often fails to explain the total neighbourhood-level variance, which might suggest that omitted variables still obscure the research results. We assume that the negative influence of neighbourhood disadvantage may be mediated and moderated by certain family and individual characteristics. More specifically, we look at the mediating properties of parenting and problem behaviour, and the moderating properties of personality and educational commitments. Previous literature already suggests that neighbourhood effects may be mediated by parenting [Galster, 2012]. We will test the mediation effect of parenting, as well as of problem behaviour. Part of the neighbourhood effect might work by influencing parenting and problem behaviour, which subsequently influence social mobility. Much rarer in the neighbourhood literature is a focus on within-person characteristics such as personality and educational commitments. We look at the role of personality and educational commitments by testing whether they moderate the influence of the neighbourhood on educational outcomes. Studying how neighbourhood effects might be mediated and moderated, will shed some light on why different studies find such different neighbourhood effects. This leads to the aim of this dissertation: *to investigate how neighbourhood effects on social mobility might be affected by parenting, problem behaviour, personality, and educational commitments*.

FACTORS INFLUENCING NEIGHBOURHOOD EFFECTS

In order to investigate whether neighbourhood effects differ for adolescents with different family and individual characteristics, we will look at different parenting strategies, problem behaviour, personality, and educational commitments. Below we will discuss how these characteristics have been studied in previous research, and how they might relate to the relation between neighbourhood characteristics and social mobility.

The family is one of the most important contexts when it comes to the development of adolescents. However, the family is a context that is embedded in the context of the neighbourhood. Parenting strategies are a tool for parents to transmit their own educational aspirations onto their children and to stimulate their children's educational success. The process would in this case be that the neighbourhood influences parental strategies, which consequently influence adolescents' educational outcomes. This suggests that parenting functions as a mediator between the neighbourhood and educational outcomes. When failing to include parenting as a mediator, the found neighbourhood effects on educational outcomes might actually reflect the effect of parenting strategies. Different parents might react differently to neighbourhood conditions, possibly leading to a differentiation in how different adolescents experience their neighbourhood. Parents have been reported to use more protective parenting strategies in neighbourhoods with high levels of poverty to shield their children from the neighbourhood's negative influence [Furstenberg et al., 1999; Pinkster & Fortuijn, 2009]. Furthermore, it can be argued that parents in more disadvantaged neighbourhoods experience more stress, due to higher levels of economic hardship and uncertainty [Hill, 1949]. Higher levels of stress might result in harsh, inconsistent, and less supportive parenting [Downey & Coyne, 1990; Klebanov et al., 1994; Kohen et al., 2008; McLoyd, 1998]. It seems that the mediation of the neighbourhood effect by parenting can work in two ways: neighbourhood poverty can lead to more protective or less supportive parenting, both leading to different educational outcomes for youth.

Another often observed problem in disadvantaged neighbourhoods is the increased likelihood for adolescents' problem behaviour [Jencks & Mayer, 1990]. Youth growing up in disadvantaged neighbourhoods are exposed to less positive role models, perceive little future possibilities, and often feel socially isolated, stigmatised and unrecognised by society [Ainsworth, 2002; Sampson & Raudenbush, 2004; Wacquant, 2008; Wilson, 1987]. The feeling of misrecognition can lead to loss of self-esteem [Honneth, 1995], which in turn can lead to higher levels of behavioural problems [Donnellan et al., 2005; Wissink et al., 2008]. Furthermore, if recognition is not perceived to be found in education, due to the lack of good role models in the neighbourhood, youth may resort to finding recognition elsewhere. This can be through membership of deviant peer groups, where status

attainment and recognition is reached through violent behaviour [Ge et al., 2002; Staff & Kreager, 2008; Willis, 1977]. Positive attitudes towards violent behaviour are likely to lead to behavioural problems in the school environment, therewith diminishing the chances for educational success. Because adolescents in disadvantaged neighbourhoods are more likely to be exposed to deviant peer groups [Sampson et al., 1997; Johnson, 2010], it is likely that the effect of neighbourhood disadvantage on educational outcomes is mediated by problem behaviour. By including problem behaviour as a mediator, we attempt to study whether the neighbourhood directly influences educational outcomes, or whether it operates via problem behaviour.

After looking at family and behavioural characteristics, we will examine whether adolescents' personality serves a moderating function against negative neighbourhood influences. It is possible that some adolescents are more flexible and respond better to pressures from the neighbourhood than others. Several studies already suggested a relationship between neighbourhood effects and personality traits: the effect of impulsivity on delinquency has been found to differ between more and less disadvantaged neighbourhoods [Lynam et al., 2000; Meier et al., 2008; Zimmerman, 2010]. Also, neighbourhood characteristics were found to relate to the effect of low self-control on violent victimisation [Gibson, 2012], of hyperactivity, impulsivity, and attention difficulties on conduct problems [Zalot et al., 2009], and of thrill and adventure seeking and lack of premeditation on offending [Jones & Lyman, 2009]. These studies suggest it might be fruitful to introduce personality into neighbourhood effects research on educational and occupational outcomes as well.

To measure whether adolescents are better able to deal with neighbourhood influences, we use a personality typology that distinguishes three personality types that score differently on ego-control and ego-resiliency: resilients, undercontrollers, and overcontrollers [Block & Block, 1980]. Ego-control is the tendency to contain versus express emotional and motivational impulses, and ego-resiliency is the tendency to respond flexibly versus rigidly to environmental demands [Klimstra et al., 2010; Meeus et al., 2011]. Resilients are characterised by medium levels of ego-control and high levels of ego-resiliency. Undercontrollers and overcontrollers both score low on ego-resiliency, but undercontrollers are marked by low levels of ego-control, while overcontrollers have high levels of ego-control [Asendorpf et al., 2001; Caspi, 1998]. Resilient adolescents are the best adjusted group, and are likely to most effectively cope with neighbourhood influences, because they are able to respond flexibly and adaptively to environmental demands. In order to find out whether neighbourhood disadvantage differently affects adolescents with different personalities, we will test the moderating effect of personality on neighbourhood effects on educational and occupational outcomes.

Besides a certain personality, adolescents might also have an internalised set of goals and values concerning their education that might aid them in better dealing with negative effects of

neighbourhood disadvantage on their educational outcomes. To test this, we look at the moderating effect of educational commitments. Educational commitment refers to the degree that adolescent's identify with, feel certain about, and internalise the educational choices they have made [Luyckx et al., 2006]. Previous research relates stronger commitments to a lower likelihood for study delay or dropping out [Germeijs & Verschueren, 2007; Klimstra et al., 2012; Robbins et al., 2004], as well as with the ability to adjust to educational demands [Luyckx et al., 2006], and with scholastic competences, work ethic and achievement motivation [Meeus et al., 2002]. Because educational commitments refer to the goals and values that an adolescent has set for his/her life, we deem it likely that educational commitments might serve as a moderator for the negative influence of neighbourhood disadvantage. Adolescents with strong educational commitments, living in disadvantaged neighbourhoods, might experience less negative influence of the neighbourhood compared to adolescents in disadvantaged neighbourhoods with weak educational commitments.

In sum, we examine which factors shield youth against negative influences from neighbourhood disadvantage on educational and occupational outcomes. More specifically, we will look at adolescents whose parents employ different parenting styles, and adolescents with different degrees of problem behaviour, different personalities, and different educational commitments. By showing which factors lead to different neighbourhood effects between adolescents, we try to shed some light on the question why the results from different neighbourhood studies vary as much as they do. We suspect that these four factors can explain some of the variance in the research findings.

METHODOLOGY

Selection bias is a problem with which almost all neighbourhood research is faced. The underlying thought is that neighbourhoods are not random selections of households, but rather a selection of families that have sorted into the neighbourhood according to their preferences and economic constraints. When selection bias is not taken into account properly, studies may run the risk of finding neighbourhood effects which are actually caused by unmeasured characteristics of the family. In short, individual characteristics that cause the choice of a certain neighbourhood may also cause the studied outcome variable. However, our respondents are adolescents, who are usually not in the position to choose their own neighbourhood. This decision is made by their parents. It could be argued, on the one hand, that because of this, selection bias may be less prominent for adolescents. However, on the other hand, an intergenerational selection effect is also possible [Sharkey & Elwert, 2011; van Ham et al., forthcoming]. It is plausible that the same parental characteristics (e.g., income,

education, cognitive ability) influence both the neighbourhood choice and the educational outcomes of adolescents. Considering these arguments it seems appropriate to test for selection bias in our study.

Because we have six-wave longitudinal panel data at our disposal, we are able to control for selection bias by using fixed-effects (FE) models. This technique controls for all time-invariant unobserved characteristics that may be correlated with both neighbourhood selection and adolescents' educational outcomes. That way it removes the effects of these unmeasured characteristics that can potentially cause selection bias [Allison, 2009].

STRUCTURE OF THE DISSERTATION

This dissertation comprises five research papers and is followed by an overall conclusion and discussion. The following is a short outline of the remaining chapters [see Table 1 for an overview of the concepts used in chapter 3 through 6].

In chapter 2 we will first present a systematic review and meta-analysis of the literature of neighbourhood effects on educational outcomes (N = 88). We undertook this effort in order to give an overall view of the research findings in the literature. The large variation in research findings makes it difficult to assess a 'true' neighbourhood effect. By employing a meta-analysis of all studies that include neighbourhood effects on educational outcomes, we attempt to quantitatively summarise neighbourhood effects. We divide the analyses by the type of neighbourhood characteristics used. Additionally, we examine how study designs of individual papers impacts their research findings. To accomplish this, we include location, the gender and age of the research sample, the definition of the researched educational outcome variable, and the use of four types of control variables in the models: previous educational attainment, school-level variables, parenting, and family SES.

Chapter 3 addresses a cross-sectional exploration of how neighbourhood effects can differ for adolescents with different characteristics. We use the Health Behaviour in School-aged Children (HBSC) dataset of 2009. The sample consists of 2,683 respondents with an average age of 13.8 years. We examine the mediating role of parenting strategies and adolescent problem behaviour on the neighbourhood effect on educational attainment.

In chapter 4 we employ the Conflict and Management of Relationships study (Conamore), which consists of six wave panel data spanning over ten years of adolescents' lives. The sample consists of 916 respondents, divided in a group of early-to-middle adolescents, aged 12-21 years, and a group of middle-to-late adolescents, aged 16-25 years. This study explores the moderating role of personality and educational commitments on the effect of neighbourhood disadvantage on educational attainment.

To explore the moderating role of personality even further, in

chapter 5 we examine how personality moderates neighbourhood effects on educational commitments, and how this differs between migrant and native adolescents. The research sample from the Conamore data consists of 907 respondents, ranging in age 12-16 (early-to-middle adolescents) and 16-20 (middle-to-late adolescents). 813 respondents are native Dutch, and 94 respondents have an immigrant background. This chapter contains a shift from the outcome variable 'educational attainment' to 'educational commitments', because we are interested in whether the neighbourhood, besides socio-economic outcomes, also plays a role in the formation of personal characteristics. More specifically, we investigate whether neighbourhood characteristics can influence the internalisation of educational norms, in order to clarify whether and how the socialisation mechanism operates at the neighbourhood level. We advance methodologically by employing fixed-effects models, which control for a large portion of potential selection bias, and which are able to predict the effect of change in neighbourhood characteristics on change in educational commitments, which makes this approach more dynamic.

In order to test whether the moderating effect of personality is robust when the outcome variable changes, in chapter 6, we shift the focus from educational outcomes to employment outcomes. More specifically, we look at how the effect of the length of exposure to neighbourhood disadvantage on unemployment and work commitments is moderated by personality. The age of the 203 respondents in the research sample from the Conamore data ranges from 16 to 25 years.

Finally, in the conclusion, we will summarise the research findings, and discuss the implications and limitations.

PREVIEW

A sneak preview of the results reveals that adolescents with a resilient personality type are hardly influenced by the neighbourhood, while non-resilient adolescents do show neighbourhood effects. Personality types proof to be a useful distinction to help find more reliable neighbourhood effects. And it shows that not every adolescent will be at risk in the face of neighbourhood adversity.

TABLE 1
Overview of concepts for chapters 3-6.

Ch.	Neighbourhood	Mediators/moderators	Dependent variables
3	Property value Prop. western migrants Prop. non-western migrants	Parental support Parental monitoring Parental permissiveness Parental permissiveness Violence	Educational attainment
4	Disadvantage (composite)	Resilient personality Educational commitment	Educational attainment
5	Prop. non-western migrants	Resilient personality	Educational commitment
6	Property value	Personality types	Work commitment Unemployment

CHAPTER 2

The association between neighbourhoods and educational achievement

a systematic review and meta-analysis

Submitted for publication

ABSTRACT

Many studies have examined the effects of neighbourhoods on educational outcomes. The results of these studies are often conflicting, even if the same independent variables (such as poverty, educational climate, social disorganisation, or ethnic composition) are used. A systematic meta-analysis may help to resolve this lack of external validity. We identified 5,516 articles from which we selected 88 that met all of the inclusion criteria. Using meta-regression, we found that the relation between neighbourhoods and individual educational outcomes is mainly a function of the neighbourhood's educational climate and neighbourhood poverty. The variance in the findings from different studies can partly be explained by the sampling design and the type of model used in each study. More important is the use of control variables (school, family SES, and parenting variables) in explaining the variation in the strength of neighbourhood effects.

INTRODUCTION

The past two decades have seen an ongoing increase in the number of studies that investigate whether and how the neighbourhood in which people reside affects their socio-economic opportunities in life, of which educational achievement is one example. This subject has also gained attention from policy makers in both Europe and the US, resulting in a variety of neighbourhood-based policies founded on the idea that neighbourhood characteristics have an impact on residents [Blasius et al., 2009]. Regardless of this widespread attention, uncertainty still exists about how a neighbourhood influences its residents, although there is some degree of consensus that interactions amongst residents are an important neighbourhood characteristic that influences the individuals in the neighbourhood [Galster, 2012; Jencks & Mayer, 1990].

Researchers base their understanding of the workings of the neighbourhood on several social mechanisms and use these mechanism to define neighbourhood characteristics that are likely to be important explanatory features for educational outcomes. The four most commonly used characteristics are: neighbourhood poverty, the educational climate, the proportion of migrant/ethnic groups, and social disorganisation. Because these characteristics are assumed to be related to different mechanisms, and therefore operate in different ways, we will examine them separately. Below we will describe how the four characteristics relate to different neighbourhood mechanisms.

One of the social mechanisms cited is contagion, which describes the extent to which residents are influenced by their neighbours' behaviour and attitudes. When negative attitudes towards education abound in a neighbourhood, its residents will be more inclined to adopt similar attitudes [Friedrichs, 1998; Friedrichs &

Blasius, 2005]. To test this model, the educational climate of the neighbourhood is often assessed. Another mechanism that is related to contagion is collective socialisation, which describes the collective ability of residents to cope with the social problems in the neighbourhood by influencing the behaviour of neighbours who do not conform to certain norms. In neighbourhoods that show higher levels of social cohesion and willingness to intervene in undesirable situations, residents are better able to enforce certain norms [Sampson et al., 1997], e.g., pro-learning norms and norms that assert the importance of education to a person's future opportunities.

For neighbourhoods with higher levels of ethnic heterogeneity or higher concentrations of poverty, conflict theory predicts more disorder. People establish their identity by categorising themselves and others as members of different groups [Taifel, 1982]. In neighbourhoods that experience competition over scarce resources like jobs or neighbourhood facilities, residents tend to perceive out-group members as a threat [LeVine & Campbell, 1972; Putnam, 2007], which can generate socially disorganised neighbourhoods with a higher likelihood of crime and violence [Morenoff et al., 2001; Shaw & McKay, 1942]. Adolescent residents in such disorderly neighbourhoods experience greater exposure to peer groups that engage in deviant behaviour and possess negative attitudes toward education. This phenomenon relates back to the contagion mechanism and collective socialisation because the presence of such behaviour and attitudes can lead to their adoption by other residents. Furthermore, given a certain level of neighbourhood disorder, there may be less social cohesion, which may create a situation in which residents are less able to control deviant behaviour or enforce positive norms related to education.

Several reviews have attempted to summarise the literature about neighbourhood effects on educational outcomes, providing insight into the importance of neighbourhoods, the mechanisms by which neighbourhoods exert their influence, and the methodologies that can be used in this field. However, these reviews were conducted for specific sub-samples [Johnson Jr., 2010], do not quantify their results [Dietz, 2002; Leventhal & Brooks-Gunn, 2000], or are dated [Jencks & Mayer, 1990]. Despite their significant value, such studies cannot explain the great diversity of results found in this field. We address these gaps through a systematic quantitative overview of the literature that has studied the influence of neighbourhood characteristics on educational outcomes. The variation in effect sizes might potentially be explained by differences between the study designs employed across the research in this area. To further examine this question, we use a meta-regression approach to analyse 88 studies. In this approach, we take the coefficients of the neighbourhood variables from the original studies and use them as the dependent variable in a new regression. This strategy allows us to identify the overall effect sizes of the four neighbourhood characteristics. Furthermore, we develop hypotheses regarding a range of study characteristics and test how they influence the results of the studies in question.

HYPOTHESES

In this section, we consider how nine study characteristics might influence the neighbourhood effect. We begin by considering the context in which each study was conducted; more specifically, we look at the difference between US and Europe based studies. Second, we consider the composition of the sample in terms of gender and age. Finally, we formulate hypotheses regarding the use of control variables like previous individual educational attainment, parental behaviour, school characteristics, and family SES.

Level of segregation

In the meta-analysis, we included only developed countries. Hence, we expect some degree of comparability between countries; however, we also expect some differences. Because most of the studies were conducted in the US or (less commonly) in Europe, it is logical to investigate the differences between them. Ethnic and socio-economic segregation is higher in the US than in Europe, and the ethnically concentrated neighbourhoods in Europe are more mixed in terms of the country of origin of their inhabitants than are those of the US, where more mono-ethnic communities can be found [Musterd, 2005; Wacquant, 2008]. The poor in Europe are not as isolated as in the US, and they may gain more from their closer proximity to middle-class citizens, whereas the US poor tend to be more isolated and lack connections with the middle class [Wilson, 1987]. For the US poor, this can generate feelings of misrecognition due to stigmatisation, frustration about being denied the rights enjoyed by more affluent members of society, and the absence of perceived future opportunities because of a lack of good role models who perform well in school [Ainsworth, 2002; Honneth, 1995]. There has been some support for threshold effect theories in neighbourhood research, indicating that beyond a certain threshold, the detrimental effect of neighbourhoods increases drastically [Quercia & Galster, 2000]. This finding implies that at high levels of segregation, neighbourhood effects are more pronounced. At the end of the spectrum, neighbourhoods are more highly segregated in the US than in Europe. Thus, we expect the US research to find stronger neighbourhood effects because the slope becomes much steeper past the threshold.

Sample gender composition

The neighbourhood seems to be a stronger predictor of boys' behaviour than girls', which may partly be due to the greater amount of time that boys spend in the neighbourhood relative to girls [Ensminger et al., 1996; Entwisle et al., 1994]; boys have greater exposure to characteristics of the neighbourhood that may influence them. The difference between boys and girls may also be explained as a function of parental monitoring: because girls are often more closely monitored by parents [Kim et al., 1999], parental monitoring may buffer girls from detrimental neighbourhood effects, whereas for boys, the influence of

parental monitoring on the strength of the neighbourhood effect may be much weaker [Flouri & Ereky-Stevens, 2008].

Furthermore, boys have been found to exhibit higher levels of externalising behaviour (e.g., aggression and delinquency) [Loeber & Hay, 1997], which is related to lower educational success [Carroll et al., 2009; Kulka et al., 1982; McCluskey et al., 2002]. Neighbourhoods with more social control may reduce this problematic behaviour to some extent [Drukker et al., 2009]. Given these arguments, we expect boys to exhibit a stronger neighbourhood effect than girls.

Sample age composition

The literature on educational achievement contains studies that examine different age groups. The age composition of a sample might influence neighbourhood effects to some extent. Because adolescents spend significant amounts of time away from their homes, parents are less able to monitor them [Kerr et al., 2010]. This may result in greater exposure to the influence of a neighbourhood than younger children experience, as parents are better able to monitor the behaviour of the latter. Therefore we expect stronger neighbourhood effects for adolescents than for younger children.

Individual previous attainment

Neighbourhood residents are not randomly distributed over neighbourhoods; rather, they often cluster within neighbourhoods based on characteristics including income and educational attainment. The neighbourhood effects identified by studies that do not consider relevant background characteristics may be a result of the clustering of youth with certain educational attainment within certain neighbourhoods. Therefore, we expect studies that consider previous individual educational attainment indicators to find weaker neighbourhood effects.

Parenting

Parental behaviour is assumed to be one of the key factors in adolescent development and educational outcomes [Bronfenbrenner, 1979]. Research that considers parenting within the context of a neighbourhood shows that parents adapt their parenting behaviour to the conditions of the neighbourhood [Duncan & Raudenbush, 1999; Furstenberg et al., 1999]. In high-poverty neighbourhoods, parents perceive the neighbourhood as a potential negative influence on their children's development [Galster & Santiago, 2006]. To shield their children from this negative influence, parents in such neighbourhoods may use more protective parenting strategies or restrict outside recreational activities to areas where they can exert more supervision (e.g., the backyard) and ensure a safer environment for their children [Fauth et al., 2007; Furstenberg et al., 1999; Valentine & McKendrick, 1997]. In neighbourhoods with higher ethnic diversity, the reasoning is similar: the presence of people of different ethnicities can increase anxiety and distrust [Bauman, 1993; LeVine & Campbell, 1972; Putnam,

2007], possibly encouraging more protective parenting strategies that can be used to protect children from the influence of out-groups [Nieuwenhuis et al., 2013a]. In using stricter monitoring strategies, parents attempt to minimise the effect that deviant neighbourhood peers may have on their children, thus attempting to control the influences to which their children are exposed despite the challenges posed by the neighbourhood in which they live [Furstenberg et al., 1999; Jarrett, 1997].

As argued above, parenting strategies vary with the neighbourhoods in which families reside. Because parenting is likely to be related to the extent to which children are protected from detrimental neighbourhood influences, we expect the neighbourhood variable slope coefficient to be different when parenting is controlled for in a study. Because of the greater perceived threat of neighbourhood influences in poor neighbourhoods [Galster & Santiago, 2006], parents in poor neighbourhoods are likely to make more of an effort to monitor their children than do parents in affluent neighbourhoods [Fauth et al., 2007; Furstenberg et al., 1999], thereby weakening the negative effect of the neighbourhood. If a study fails to control for parenting, the weakening effect of parenting on the neighbourhood effect should be reflected in the neighbourhood coefficient, decreasing its slope. Studies that do control for parenting should find a stronger neighbourhood coefficient because the weakening influence of parenting on the neighbourhood effect is reflected in the parenting coefficient. The same reasoning applies if parenting is held constant across poor and affluent neighbourhoods but it is assumed that children in poor neighbourhoods benefit more from parenting as a form of protection from negative neighbourhood influence. Studies that do not control for parenting may find a weaker neighbourhood effect because the shielding effect of parenting detracts from the neighbourhood effect. Including the parenting variable makes the neighbourhood effect more pronounced, and the weakening effect of parenting is reflected in the coefficient of the parenting variable. The above reasoning leads us to expect that controlling for parenting will strengthen the negative neighbourhood coefficient.

Schools

Various social contexts shape the educational development of adolescents. Neighbourhoods are one such context, and schools are another [Bronfenbrenner, 1979]. Previous research has investigated how school and neighbourhood effects are related in their effect on educational outcomes; however, a consensus has not been reached. Some studies find that neighbourhood effects disappear after schools are controlled for [Sykes & Musterd, 2011], whereas others find that the same effects remain [Bowen & Bowen, 1999] and still others find that the results depend on how the neighbourhood and school variables are measured [Owens, 2010; Pong & Hao, 2007]. Furthermore, studies that have considered the within-neighbourhood variance of educational achievement find a decrease in such variance after controlling

for the school context [Brännström, 2008; Kauppinen, 2008].

The task of disentangling the influence of schools from neighbourhood effects is not a straightforward one. Schools may be a pathway through which neighbourhood effects are expressed given that poor neighbourhoods often have poor schools that have difficulty attracting good teaching staff because of their lack of resources [Jencks & Mayer, 1990; Wacquant, 2008]. In addition, the demographic composition of a neighbourhood is often represented in the school population because school choice may be restricted or influenced by school catchment areas, information about schools from parents' local social networks, or the proximity of certain schools. The resulting overlap between the demographics of the neighbourhood and those of the school makes it difficult to ascribe influence to one of the two contexts in particular. However, in disadvantaged neighbourhoods, parents may choose to send their children to schools outside their own neighbourhoods, where the quality of the education is expected to be better and the student demographics to be less disadvantageous [Furstenberg et al., 1999; Pinkster & Fortuijn, 2009]. In a study of youth delinquency, it emerged that adolescents who spend time outside of their own neighbourhoods with peers from other neighbourhoods are not affected by their own neighbourhoods [Oberwittler, 2007]. This finding suggests that when school and neighbourhood contexts do not overlap and when adolescents have more opportunities in school to meet peers from outside their own neighbourhoods, the likelihood of their being affected by their neighbourhoods may be smaller.

Students from poor areas are expected to be more likely to attend poor-quality schools. If not properly controlled for, the negative influence of such schools on the educational opportunities of students compared to those enrolled at higher-quality schools may spuriously be assigned to the neighbourhood instead. However, if we consider schools as a component of the institutional mechanisms through which a neighbourhood influences its residents, then controlling for school characteristics might to some degree minimise the explanatory power of the neighbourhood characteristics. In either case, we expect that studies that control for school-related variables will find weaker neighbourhood effects.

Family SES

Neighbourhood research is often hampered by endogeneity problems and omitted variable bias. The neighbourhood in which one lives is not fixed but is rather the result of economic and social constraints. The social composition of neighbourhoods is the result of sorting. Although it is impossible to determine the exact sorting process, including control variables that are likely to be related to that process will decrease the level of omitted variable bias [Dietz, 2002]. Family socio-economic status is likely to be related to family choices regarding neighbourhood residence; thus, including family SES will likely decrease the level of omitted variable bias and therefore change the

magnitude of the neighbourhood coefficients.

Two scenarios are possible: that omitting relevant variables will bias the neighbourhood coefficient downward or upward. On the one hand, because of economic constraints, poor families are more likely to live in poor neighbourhoods than are rich families, so neighbourhood SES is a partial proxy for the variation in family SES [Jencks & Mayer, 1990]. Furthermore, poor parents are more likely to lack access to the cultural and economic resources that they require to help their children succeed in a school environment, which may lead their children to exhibit lower educational attainment [Coleman, 1988; Lareau, 2003; Portes & MacLeod, 1996]. Because poor educational outcomes and a poor neighbourhood in this example are both the result of low family SES, omitting family SES will yield a stronger neighbourhood coefficient [Duncan et al., 1997]. On the other hand, parents with higher SES are better equipped to help their children achieve the competences that are required for high performance in school and are found to allocate more time to child-rearing than do lower class parents [Bianchi et al., 2006; McLanahan, 2004]. High family SES in this example would partly compensate for the detrimental influence of a poor neighbourhood. This expectation is similar to our expectation for parenting: when not controlled for, the weakening effect of family SES on the neighbourhood effect will render the neighbourhood coefficient weaker. Hence, we hypothesise that studies that control for family SES will find stronger neighbourhood coefficients.

Testing these hypotheses will help to explain the variation in the results of different studies and will indicate how researchers can obtain more robust results in neighbourhood research. Moreover, investigating how such results are influenced by the chosen study design provides meaningful insight into the mechanisms through which a neighbourhood may influence its residents, strengthening the external validity of the relevant theory.

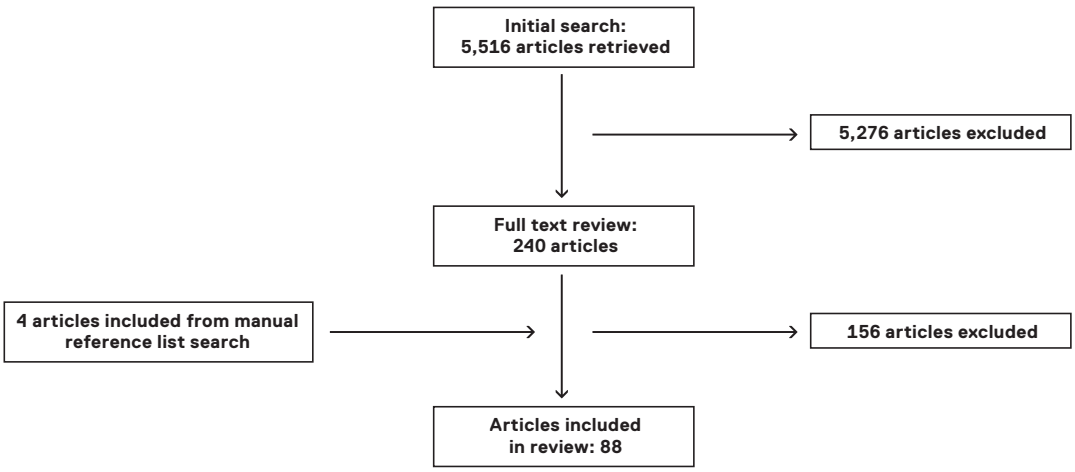
METHOD

Data

We identified relevant studies through a systematic search of Scopus that we conducted in October 2011. The search query included two themes: 'neighbourhood' and 'education'. For both themes, the query required at least one of the search terms to be present in the title, abstract, or keywords of the study. The 'neighbourhood' theme included the following: neighb*rhood or "community characteristic*" or "residen* characteristic*" or "environment* characteristic*" or "context* characteristic*". 'Education' included the following: education* or school or grade* or drop*out or "drop out" or academic*. The asterisk symbol is used to allow for every variant of a search term. The initial search yielded 5,516 hits [see figure 1]. Additionally, manual searches of the articles' bibliographies were conducted to identify

relevant studies that were not identified in the initial electronic search. This step yielded four additional studies. Filters were used to limit the results to social scientific studies in peer reviewed journals. No language filter was used; however, because English search terms were used, non-English language studies were only included when an English abstract was provided. This process led to the inclusion of two non-English studies, one in Dutch and one in French.

Figure 1: Flow chart of the literature search process:



The relevant studies were identified in two steps. First, the titles and abstracts of the studies were reviewed. This process yielded 244 potential candidate studies. In the second step, based on a full-text review, studies were included if they met the following criteria:

1. 'educational achievement' is the dependent variable;
2. the independent variables contain at least one neighbourhood characteristic;
3. (non-experimental) multivariate analysis is used;
4. a 'neighbourhood' is defined as "the neighbourhood in which the respondent lives/lived" rather than as the area around the school that the respondent attends;
5. the sample used does not consist of pre-schoolers (as our goal was to accurately analyse educational outcomes rather than school-readiness);
6. the sample is from a developed country;
7. the study uses recent data, defined as data from 1940 to the present;
8. the article provides information to obtain the coefficient and standard error.

Of the 244 full-text review studies, 88 studies met all of the inclusion criteria.

From each article, the following elements were recorded: sample size, sample age, sample gender composition, analysis type, operationalisation of 'educational outcome', coefficients and standard errors of the neighbourhood-level independent variables (34 in total), and information about the control variables. The dependent variable 'educational outcome' includes nine categories:

1. high school graduation rate;
2. high school dropout rate;
3. grades/test scores;
4. school performance (including teacher assessments and combinations of several categories);
5. grade retention;
6. years of education;
7. highest education;
8. college attendance; and
9. college graduation.

When studies use high school dropout or grade retention as the outcome variable, the value of the dependent variable is inversed to orient the data in the same direction as the other educational outcome categories. The studies that are not included are those that use behavioural dependent variables such as truancy or expulsion from school.

Dependent variables

The dependent variables in the meta-regression are the unstandardised coefficients of the independent neighbourhood variables from the original studies. When odds are provided, we transformed these to log odds. This enabled us to calculate standard errors, which are necessary for our analyses [see the Analysis section]. We constructed four dependent variables for the four analyses we conduct: poverty, the educational climate, the proportion of migrant/ethnic groups, and social disorganisation. The four variables are combinations of sets of predefined variables from the original studies used to enlarge the N. If a study contains one of the predefined variables, the value of the coefficient is included in the dependent variable. For studies that contain more than one of these variables, the coefficient of the variable with the highest absolute magnitude after weighting using the inverse of the standard error is included. Neighbourhood poverty is analysed using the following variables from the original studies: the proportion of the population with a low SES, the proportion of poor households, the proportion of rich households (inversed), the share of the population that is unemployed, institutional resources (inversed), the proportion of high-status residents (inversed), the share of homeowners (inversed), the proportion of single mothers, and variables used in previous studies that combine some of these other variables. Educational climate is negatively coded and should be interpreted as indicating a poor educational climate. This category includes

the proportion of high school dropouts; the share of high educated individuals (inversed); peer grades (inversed); and the proportion of youth in school (inversed). The proportion of migrant/ethnic groups variable takes into account both the proportion of migrant/ethnic groups and the proportion of whites (inversed). Social disorganisation takes into account positive perceptions of the neighbourhood (inversed), social cohesion (inversed), social control (inversed), disorder/crime, poor physical conditions, residential stability (inversed), and population density.

Covariates

The study characteristics are extracted to test their influence on the results. The location where the study was conducted is coded using three dummies: the US, (Northern and Western) Europe, and other. The 'other' category includes Canada (4 studies), Australia (3), and Taiwan (1).

Two characteristics of the sample are included: age and gender. Sample age is coded using three dummies: 4-10 years, 11-20 years, and 21 years and older. Studies that contained samples that had overlap within these categories are included in the category that contained the largest part of their sample. Gender is also coded using three dummies: male, female, and mixed.

The analyses contain four dummies that measure the use of certain control variables in the original study: one for school-level control variables; one for controls related to parenting behaviour of respondents' parents; one for controls related to respondents' family SES; and one for control variables that reflect previous individual educational attainment.

Sample size and the use of multilevel analysis are associated with more precise results. It is unclear if a more precise neighbourhood effect is a weaker or stronger neighbourhood effect. However, including control variables for sample size and the use of multilevel will enable us to reveal if the 'true' neighbourhood effect is weaker or stronger. We do not expect the effect of sample size to be linear, hence we take the log of the sample size. For the use of multilevel modeling we include a dummy.

Because educational outcomes are grouped into nine categories and are thus not operationalized in the same way in all studies, we include control dummies for this. Dependent on the distribution of the categories in a model, we include dummies for single categories or dummies for combinations of categories. All of the covariates are standardised. The descriptive statistics for the unstandardised variables for all four models can be found in Appendix A [Tables A1-A4].[1]

1. We also tried to construct a measure for the neighbourhood delineation used in different studies. However, because of the great variety in the used delineations, we were not able to construct a meaningful variable. Furthermore, we tried to include a covariate capturing studies that use techniques to overcome selection bias. However, because these techniques are quite novel and diverse, we were not able to construct this into a workable covariate.

Analysis

We conducted the four analyses using random-effects meta-regression. The models use the coefficients of the independent neighbourhood variables from the original studies as the dependent variables. The coefficients are estimated via weighted least squares using the inverse of the between-study variance (τ^2) and the standard error (σ^2) of the estimated effect in the original study i as the weight ($1/(\sigma^2+\tau^2)$) [Harbord and Higgins, 2008]. Because of this weighting process, more precise studies (i.e., studies with smaller standard errors) have more influence in the analysis. The meta-regression also indicates the between-study variance (τ^2) and the proportion of the residual variation that can potentially be explained by study-level covariates (I^2_{res}).

Several of the studies contain analyses of subgroups: for example, analyses of males and females or of an ethnic sample and a native sample. Using studies or subgroups as the unit of analysis yields no difference with regard to the computed summary effect and variance. However, it does yield a different level of between-study variance [Borenstein et al., 2009]. We expect the effects to differ for the different groups; therefore, we use subgroups as the unit of analysis, effectively computing the between-study variance based on the subgroups. This results in N's of 94, 17, 48, and 47.

RESULTS

Table 1 shows the results of the meta-regression for neighbourhood poverty. Looking first at the intercept, we see a clear negative result of neighbourhood poverty on educational achievement, even after taking into account a large range of study characteristics. The positive coefficient of 'other location' indicates that this neighbourhood effect is smaller in Australia and Canada (the study from Taiwan is not included in this analysis) than in Europe. The statistical and sample-specific covariates do not seem to influence the results, although the log of sample size has a marginally significant negative effect. The results do seem to differ when different educational outcomes are investigated: studies that examine school performance, college education or years of education yield weaker results than do studies that examine grades or test scores.

Looking at the use of specific control variables, we see that controlling for school-related variables decreases magnitude of the effect of the neighbourhood. Controlling for parenting increases the magnitude of the neighbourhood poverty coefficient, as does controlling for family SES. Studies that control for previous individual educational achievement do not seem to find results that are different from those of studies that do not control for it.

The results of the meta-regression for poor educational climate in the neighbourhood are shown in Table 2. The intercept shows a negative association between a poor educational climate

and educational achievement. This association does not seem to be weaker when high school graduation is used as educational outcome variables, compared to grades/test scores, school performance, and grade retention. Comparing the US and European studies indicates that the American studies yielded much stronger negatives than the European ones. Furthermore, a larger sample size increases the magnitude of the neighbourhood coefficient. Studies that use samples with respondents who are 21 years or older find weaker effects than do studies that use samples composed of 11-20 year olds. Controlling for school-related variables increases the strength of the neighbourhood coefficient.

The meta-regression for the proportion of migrant/ethnic groups in the neighbourhood [Table 3] yields a negative intercept, indicating that individuals in neighbourhoods with higher proportions of migrant or ethnic groups achieve less with regard to their education. This result does not seem to change when different categories of educational outcomes are used. The use of multilevel analysis increases the strength of the negative neighbourhood coefficient. However, because this is the only model in which we find a significant effect, we cannot say whether the use of multilevel analysis systematically yields weaker or stronger neighbourhood effects. Additionally, studies that control for parenting find a stronger negative effect.

The meta-analysis of neighbourhood social disorganisation is shown in Table 4, where we find a negative overall effect on educational achievement, a result that is much smaller when the sample size increases. In addition, controlling for family SES seems to decrease the size of the coefficient. Other covariates do not influence the neighbourhood coefficients.

TABLE 1
Meta-regression for neighbourhood poverty (*N* = 94).

	coef.	s.e.	t
Location (ref.: Europe)			
US	.021	.040	.53
Other	.066*	.030	2.24
Sample gender (ref.: female)			
Male	.001	.037	.02
Mixed	-.038	.049	-.78
Sample age (ref.: 11-20 years)			
4-10 years	.039	.046	.86
21+ years	.003	.042	.07
Previous educational attainment control variables	.042	.037	1.16
Parenting control variables	-.139**	.049	-2.84
School-level control variables	.075*	.038	1.99
Family SES control variables	-.094†	.049	-1.92
Sample size (log)	-.065†	.039	-1.68
Use of multilevel	.049	.042	1.19
Educ. outcome (ref.: grades/test scores)			
High school graduation & H.S. drop out	.050	.050	1.00
School performance & Grade retention	.094*	.040	2.33
Years of education; Highest education; College attendance & C. graduation	.105*	.051	2.07
Intercept	-.159**	.037	-4.31
Between-study variance (τ^2)	.02477		
Proportion residual variation (I^2_{res})	.9142		

† $p < .10$ * $p < .05$ ** $p < .01$

TABLE 2
Meta-regression for poor educational climate (*N* = 17).

	coef.	s.e.	t
Location (ref.: Europe & other)			
US	-.264*	.096	-2.76
Sample age (ref.: **11-20** years)			
21+ years	.192*	.072	2.66
School-level control variables	-.320*	.103	-3.11
Sample size (log)	-.274*	.089	-3.09
Use of multilevel	.095	.071	1.34
Educ. outcome (ref.: grades/test scores; school performance & grade retention)			
High school graduation	.127*	.047	2.68
Years of education; Highest education & College attendance	.099	.057	1.74
Intercept	-.503**	.134	-3.76
Between-study variance (τ^2)	.01465		
Proportion residual variation (I^2_{res})	.8773		

† $p < .10$ * $p < .05$ ** $p < .01$

TABLE 3
Meta-regression for the proportion of migrant/ethnic groups (*N* = 48).

	coef.	s.e.	t
Location (ref.: Europe & other)			
US	-.003	.005	-.50
Sample gender (ref.: female)			
Male	-.002	.001	-1.09
Mixed	.002	.004	.52
Sample age (ref.: 11-20 years)			
4-10 years	.006	.023	.25
21+ years	-.003	.004	-.57
Previous educational attainment control variables	-.028	.021	-1.37
Parenting control variables	-.115**	.031	-3.72
School-level control variables	.000	.005	-.04
Sample size (log)	.000	.004	-.06
Use of multilevel	-.010**	.003	-3.66
Educ. outcome (ref.: grades/test scores)			
High school graduation & H.S. drop out	-.024	.019	-1.27
School performance & Grade retention	-.006	.013	-.47
Years of education & College attendance	-.024	.019	-1.27
Between-study variance (τ^2)	.0000		
Proportion residual variation (I^2_{res})	.5635		

† *p* < .10 *** *p* < .05** **** *p* < .01**

TABLE 4
Meta-regression for social disorganisation (*N* = 47).

	coef.	s.e.	t
Location (ref.: Europe & other)			
US	-.006	.020	-.28
Sample age (ref.: **11-20** years)			
4-10 years	.019	.021	.89
21+ years	.036	.029	1.23
Previous educational attainment control variables	.002	.019	.08
Parenting control variables	-.013	.023	-.55
School-level control variables	-.009	.022	-.41
Family SES control variables	.046*	.019	2.45
Sample size (log)	.047†	.023	2.02
Use of multilevel	-.008	.020	-.38
Educ. outcome (ref.: everything else)			
Grades/Test scores	.016	.041	.38
Intercept	-.073*	.028	-2.59
Between-study variance (τ^2)	.00053		
Proportion residual variation (I^2_{res})	.7164		

† *p* < .10 *** *p* < .05** **** *p* < .01**

CONCLUSION & DISCUSSION

This meta-analysis reviews the quantitative research that has been conducted on the association between neighbourhoods and individual educational outcomes. We can see that all four neighbourhood characteristics we studied have a significant association with individual educational outcomes. A poor educational climate in a neighbourhood is found to have the strongest association with educational outcomes, followed by neighbourhood poverty. Social disorganisation and the proportion of ethnic/migrant groups in a neighbourhood seem to have much weaker associations with educational outcomes. These findings suggest that neighbourhood effects exist but that some neighbourhood-level characteristics explain educational outcomes better than others do. That poor educational climate has the strongest effect is not unexpected because theoretically, it is most closely related to educational outcomes. Poor educational climate is associated with social contagion and collective socialisation mechanisms. A poorer educational climate in a neighbourhood may partly be a reflection of social norms that suggest that education is unimportant and there is low social pressure to perform well in education. Furthermore, that the weakest association is that between the proportion of ethnic or migrant groups and educational outcomes suggests that ethnicity by itself is not the most powerful neighbourhood characteristic that explains educational outcomes. The validity of the coefficient's magnitude is emphasised by the small and mostly insignificant coefficients of the covariates in the model.

We also tested whether study-level design characteristics influence neighbourhood effects. Beginning by examining the institutional environment, we find some support for the hypothesis that neighbourhood effects in general differ across different environments. For the specific neighbourhood variable 'poor educational climate', we do find a significant difference between the US and Europe; much stronger negative neighbourhood effects are found in the US. Additionally, in the other three models, the sign of the coefficients also suggests that the US findings are stronger, but the coefficients are not significant. This result suggests that the higher concentration of disadvantaged groups in the US leads to a steeper neighbourhood effect.

The composition of the sample with regard to gender was argued to influence the strength of the neighbourhood effect because of boys' higher exposure to their neighbourhoods. However, we find no proof that this is the case for any of the four studied neighbourhood effects. We also expected to find differences between different age groups; however, we do not find strong support for the hypothesis that different neighbourhood effects are found across age groups. Only the model for poor educational climate shows that when studies use samples composed of 21 year olds or older individuals, they find weaker negative effects than when samples of 11-20 year olds are used. This finding indicates that the influence of the neighbourhood is stronger for adolescents than for young adults. However, because

only one of the four models finds a difference between the age groups, this finding should not be interpreted as a strong claim.

We coded four types of control variables that studies could have used: previous individual educational attainment, parenting behaviour, school-level control variables, and family SES. Unexpectedly, we do not find that controlling for previous educational attainment has a significant influence on the strength of the neighbourhood effect; there is no support for the claim that neighbourhood effects are found because this type of heterogeneity within the sample is not controlled for. Nevertheless, looking only at the direction of the results in the models for poverty and social disorganisation, we can see that previous attainment decreases the magnitude of the neighbourhood coefficients, as predicted. However, because adolescents often have little influence over their families' choice of neighbourhoods, such heterogeneity might be better reflected by the parents.

A number of studies control for parenting behaviour in their models. We hypothesised that in neighbourhoods with high levels of poverty or ethnic heterogeneity, either parents parent more or youth benefit more from parenting than in low-poverty neighbourhoods. Therefore, when parenting is omitted from the model, the shielding effect of parenting on the neighbourhood's influence on educational achievement will be incorporated in the neighbourhood coefficient, rendering it weaker. Conversely, when it is included, the neighbourhood effect will be stronger. This hypothesis is supported for poverty, for the proportion of migrant/ethnic groups in the neighbourhood, and (albeit insignificant) for social disorganisation; in all three cases, a stronger negative neighbourhood effect is found when parenting is controlled for. Moreover, in the model for the proportion of migrant/ethnic groups, the coefficient of controlling for parenting has a considerably larger magnitude than the coefficients of the other covariates, suggesting that it might be difficult for studies to determine the effect of the presence of migrant/ethnic groups within a neighbourhood when they do not take parenting into account in their models. Different explanations for these results are possible. Neighbourhood effects could be mediated by parenting, or there could be an interaction effect between neighbourhood characteristics and the benefits gained from parenting. Because parenting includes different dimensions (e.g., support and control), it might be fruitful to consider how neighbourhoods affect different dimensions of parenting and, consequently, how these different dimensions relate to the relationship between the neighbourhood and educational outcomes [e.g., Nieuwenhuis et al., 2013a]. Parental control may increase when neighbourhood poverty increases because parents want to protect their children from detrimental neighbourhood effects. However, parental support may decrease because neighbourhood poverty and disorder may increase parental stress, which is associated with less supportive parenting [Downey & Coyne, 1990; Kohen et al., 2008]. Different parenting behaviours may have different effects on educational outcomes, which can generate interesting research questions

about the relationship between neighbourhoods, parenting, and educational outcomes.

Controlling for school-related variables was expected to weaken the neighbourhood effect, either because school effects are ascribed to the neighbourhood when school-related variables are not controlled for or because neighbourhood effects might disappear due to over-controlling for school characteristics. This supposition is supported in the model for neighbourhood poverty, where controlling for school variables weakens the neighbourhood variable. However, it must be noted that different policies exist across countries with reference to school catchment areas and school choice – and that as a result, schools are not necessarily located in the neighbourhood in which the students live. Given this variance, we cannot be certain that the same mechanism is present in all of the studies examined here. Furthermore, contrary to our expectations, in the model for poor educational climate, the negative neighbourhood coefficient is strengthened when school variables are controlled for. The same relationship is suggested when we examine the sign of the insignificant covariates for the school in the models for migrant/ethnic groups and social disorganisation. One possible explanation for this finding could be that good schools compensate for the detrimental effects of a bad neighbourhood. Therefore, when school-related variables are controlled for, the estimation of the neighbourhood effect is not influenced by the differences between the schools that the students attend, and a stronger neighbourhood effect results. Because of the contradictory findings of the models for neighbourhood poverty and poor educational climate, it appears that two mechanisms are present that work in opposite directions. Future research should attempt to determine when each mechanism is more important.

We suggest two opposing scenarios that indicate how the neighbourhood effect may change when family SES is not controlled for. One scenario involves downward bias and the other upward bias. We found support for both scenarios. First, in the model for neighbourhood poverty, controlling for family SES yields stronger negative neighbourhood effects. This finding suggests that differences in family SES within neighbourhoods lead to the underestimation of the neighbourhood effect when family SES is omitted from the model. Second, in the model for social disorganisation, controlling for family SES leads to weaker negative neighbourhood effects. This finding suggests that both educational achievement and the neighbourhood in which people live are the result of family SES. When SES is omitted, spurious neighbourhood effects are found that are actually caused by family SES. Given that both scenarios are supported by the data, it would be interesting to more deeply consider this question to determine the dynamic between family SES, neighbourhood characteristics, and individual outcomes.

The models still exhibit residual variation, which can potentially be explained by additional study-level covariates. First, the mechanisms that explain the neighbourhood effects are often based on

interactions between people; therefore, the assumption is that social networks play a significant role. The neighbourhood delineation that best captures an individual social network is a contested issue; additionally, networks outside of the neighbourhood are likely to also influence resident outcomes. Second, studies could employ more sophisticated statistical models or longitudinal designs to attempt to overcome selection effect bias, which might yield different results than have been obtained by studies that have not used these tools. However, because such approaches are quite novel and diverse, there is not enough variation to capture these elements in workable covariates. Third, different results might be obtained from studies that use linear and non-linear neighbourhood variables. However, because different non-linear studies are not equally operationalised and because it is difficult to predict how non-linear variables would behave in meta-regression analyses, including non-linear variables would pose great difficulties. Fourth, different findings could result from differences in sample composition (e.g., with regard to income or ethnicity) because some groups might be more vulnerable to the influence of context. We did not include these considerations due to the high number of missing values for income and ethnic background within the sample. Lastly, for the purpose of obtaining big enough samples, we collapsed all neighbourhood characteristics into four categories. Even though these categories are informed by the literature, the neighbourhood characteristics within categories might still differ to some extent. This can potentially also increase the residual variance of the models. These differences between studies are likely to partially explain the residual variation; thus, further examining these issues is likely to provide additional insight in the variation between the results of different studies, however, such efforts lie beyond the scope of this study.

The main conclusions of this review are as follows. First, our analyses of the current literature have shown that at least four neighbourhood characteristics do influence educational outcomes. The intercepts of our models indicate that educational climate is the strongest predictor, followed by neighbourhood poverty. Social disorganisation and the proportion of ethnic or migrant groups have a much weaker negative effect on educational achievement. Second, study-level characteristics seem to have a substantial influence on the neighbourhood effects that are found in different studies. Most importantly, it is necessary to add the right control variables to the model to avoid overestimating or underestimating neighbourhood effects. Close attention to how studies are designed is warranted, and this meta-analysis provides some clues about what requires attention.

ACKNOWLEDGEMENTS

We would like to thank Rongqin Yu, Jarno Hoekman, Pierre-Alexandre Balland, and the members of the 'Poverty Neighbourhoods' working group at the ENHR2012 conference in Lillehammer for their helpful suggestions.

APPENDIX A: DESCRIPTIVE STATISTICS

TABLE A1
Descriptive statistics for the unstandardised coefficients for the neighbourhood poverty model (*N* = 94).

Variable name	Mean	SD	Min.	Max.
Neighbourhood poverty (unweighted)	-0.680	3.330	-29.909	8.88
Location:				
US	0.691	0.464	0	1
Europe	0.223	0.419	0	1
Other	0.085	0.281	0	1
Sample gender:				
Male	0.096	0.296	0	1
Female	0.106	0.310	0	1
Mixed	0.798	0.404	0	1
Sample age:				
4-10 years	0.191	0.396	0	1
11-20 years	0.649	0.480	0	1
21+ years	0.160	0.368	0	1
Previous educational attainment control variables	0.255	0.438	0	1
Parenting control variables	0.128	0.335	0	1
School-level control variables	0.277	0.450	0	1
Family SES control variables	0.947	0.226	0	1
Sample size (log)	7.748	1.506	5.136	12.475
Use of multilevel	0.330	0.473	0	1
Educ. outcome:				
High school graduation	0.106	0.310	0	1
High school drop out	0.160	0.368	0	1
Grades/test scores	0.457	0.501	0	1
School performance	0.043	0.203	0	1
Grade retention	0.011	0.103	0	1
Years of education	0.096	0.296	0	1
Highest education	0.021	0.145	0	1
College attendance	0.085	0.281	0	1
College graduation	0.021	0.145	0	1

TABLE A2
Descriptive statistics for the unstandardised coefficients for the poor educational climate model (*N* = 17).

Variable name	Mean	SD	Min.	Max.
Poor educational climate (unweighted)	-1.282	4.852	-20.08	0.544
Location:				
US	0.412	0.507	0	1
Europe	0.588	0.507	0	1
Other	0.000	0.000	0	0
Sample gender:				
Male	0.059	0.243	0	1
Female	0.059	0.243	0	1
Mixed	0.882	0.332	0	1
Sample age:				
4-10 years	0.000	0.000	0	0
11-20 years	0.471	0.514	0	1
21+ years	0.529	0.514	0	1
Previous educational attainment control variables	0.118	0.332	0	1
Parenting control variables	0.000	0.000	0	0
School-level control variables	0.176	0.393	0	1
Family SES control variables	0.941	0.243	0	11
Sample size (log)	8.469	1.626	6.45	12.475
Use of multilevel	0.176	0.393	0	1
Educ. outcome:				
High school graduation	0.294	0.470	0	1
High school drop out	0.000	0.000	0	0
Grades/test scores	0.059	0.243	0	1
School performance	0.059	0.243	0	1
Grade retention	0.118	0.332	0	1
Years of education	0.176	0.393	0	1
Highest education	0.118	0.332	0	1
College attendance	0.176	0.393	0	1
College graduation	0.000	0.000	0	0

TABLE A3
Descriptive statistics for the unstandardised coefficients for the proportion of migrant/ethnic groups model (*N* = 48).

Variable name	Mean	SD	Min.	Max.
Proportion ethnic/migrant groups (unweighted)	0.022	4.346	-11.584	23.997
Location:				
US	0.750	0.438	0	1
Europe	0.208	0.410	0	1
Other	0.042	0.202	0	1
Sample gender:				
Male	0.167	0.377	0	1
Female	0.146	0.357	0	1
Mixed	0.688	0.468	0	1
Sample age:				
4-10 years	0.125	0.334	0	1
11-20 years	0.667	0.476	0	1
21+ years	0.208	0.410	0	1
Previous educational attainment control variables	0.188	0.394	0	1
Parenting control variables	0.063	0.245	0	1
School-level control variables	0.229	0.425	0	1
Family SES control variables	0.958	0.202	0	1
Sample size (log)	7.955	1.570	5.278	12.475
Use of multilevel	0.292	0.459	0	1
Educ. outcome:				
High school graduation	0.104	0.309	0	1
High school drop out	0.125	0.334	0	1
Grades/test scores	0.375	0.489	0	1
School performance	0.042	0.202	0	1
Grade retention	0.042	0.202	0	1
Years of education	0.167	0.377	0	1
Highest education	0.000	0.000	0	0
College attendance	0.146	0.357	0	1
College graduation	0.000	0.000	0	0

TABLE A4
Descriptive statistics for the unstandardised coefficients for the social disorganisation model (*N* = 47).

Variable name	Mean	SD	Min.	Max.
Social cohesion/order (unweighted)	-2.252	9.050	-61.16	4.41
Location:				
US	0.787	0.414	0	1
Europe	0.170	0.380	0	1
Other	0.043	0.204	0	1
Sample gender:				
Male	0.021	0.146	0	1
Female	0.021	0.146	0	1
Mixed	0.957	0.204	0	1
Sample age:				
4-10 years	0.319	0.471	0	1
11-20 years	0.489	0.505	0	1
21+ years	0.191	0.398	0	1
Previous educational attainment control variables	0.340	0.479	0	1
Parenting control variables	0.255	0.441	0	1
School-level control variables	0.404	0.496	0	1
Family SES control variables	0.660	0.479	0	1
Sample size (log)	7.226	1.752	4.727	11.397
Use of multilevel	0.383	0.491	0	1
Educ. outcome:				
High school graduation	0.021	0.146	0	1
High school drop out	0.064	0.247	0	1
Grades/test scores	0.702	0.462	0	1
School performance	0.085	0.282	0	1
Grade retention	0.021	0.146	0	1
Years of education	0.000	0.000	0	0
Highest education	0.043	0.204	0	1
College attendance	0.064	0.247	0	1
College graduation	0.000	0.000	0	0

CHAPTER 3

Neighbourhood effects on school achievement

the mediating effect of parenting and problematic behaviour?

Published as:
Nieuwenhuis, J., P. Hooimeijer, S. van Dorsselaer & W. Vollebergh (2013). Neighbourhood effects on school achievement: the mediating effect of parenting and problematic behaviour? Environment and Planning A, 45(9): 2135-2153. doi:10.1068/a45367

Jaap Nieuwenhuis, Pieter Hooimeijer,
Saskia van Dorsselaer & Wilma Vollebergh

ABSTRACT

Neighbourhood research hitherto suggests that the neighbourhood in which youth grow up affects their educational achievement. However, the mechanisms though which the neighbourhood reaches these effects are still unclear. Family and individual characteristics seem important in explaining educational outcomes. We propose therefore two related mediating factors: parenting strategies and problematic behaviour. We test this mediation using the 2009 HBSC data (*N* = 2683), in which adolescents are surveyed about their behaviour and relationships, and additionally, their parents are interviewed about their child and their parenting. These data are combined with data from Statistics Netherlands, which include neighbourhood-level information about real estate value and ethnic variation of the neighbourhood population. The results show that effects of the proportion of immigrants groups and the mean property values in the neighbourhood are unlikely to be mediated by parenting behaviours and problematic behaviour. The results also show that parents are likely to adapt their parenting behaviours to demographic neighbourhood characteristics. For example, parents in neighbourhoods with higher ethnic heterogeneity apply more protective parenting strategies.

INTRODUCTION

Neighbourhood effects studies hitherto generated mixed evidence about whether and how the community of the neighbourhoods in which adolescents reside influence their educational achievement [Dietz, 2002; Jencks & Mayer, 1990]. That neighbourhood disadvantage is related to poorer educational outcomes is an often examined idea, however, the specific mechanisms underlying neighbourhood effects are still unclear. Neighbourhood research on social outcomes often fails to explain the neighbourhood-level variance, and concludes that included individual and family characteristics explain more than the neighbourhood characteristics [see e.g. Boyle et al., 2007; Sykes & Musterd, 2011]. This leads to the proposition that the relation between individual and family-level characteristics and the neighbourhood is warranted. It is possible that the remainder of the neighbourhood-level variance can partly be explained by including individual and family-level characteristics, on the condition that neighbourhoods have an indirect effect on educational outcomes, through these characteristics.

The reason to include family context is that parents are arguably amongst the key actors that shape adolescent development. The family in which adolescents grow up can be described as a site of social reproduction, where adolescents obtain cultural and linguistic competences, and values about the importance of education [Bourdieu, 1986; Lareau, 2003]. The obtained competences and values (i.e., cultural capital) can be utilised in the learning process, and form

dispositions in adolescents of how education and the educational environment should be approached [Bourdieu, 1986]. The obtained cultural capital therefore forms an important determining factor in adolescents' school behaviour and educational success. Parents with different characteristics differ both in aspirations for their children and in the possibilities and abilities they have to realise these aspirations [Coleman, 1988; Lareau, 2003; Portes & MacLeod, 1996]. Hence, depending on parental characteristics, the acquired competences and values differ per child, resulting in a higher likelihood for intergenerational similarity in educational achievement [Bourdieu & Passeron, [1977] 1990; Grusky, 1983]. For example, children from higher class or ethnic majority families receive competences, or cultural capital, more in line with the dominant culture. First, because their parents value these competences and the expected educational returns, which can be illustrated by the finding that higher class parents allocate more time to child rearing compared to lower class parents [Bianchi et al., 2006; McLanahan, 2004]. And second, because their parents are better able to provide these competences, since they posses the economic and cultural resources to do so. The received competences of higher class and ethnic majority adolescents correspond better with the dominant culture, represented in the educational system. Combined with the inherited values about the importance of education, they will result in more educational success for these groups, therewith reproducing existing social hierarchies [Bourdieu, 1986; Crompton, 2006; Willis, 1977].

To enquire into combined effects of the neighbourhood, the family, and the individual adolescent, we will place parenting strategies and adolescent problematic behaviour in the neighbourhood context. Research shows that the neighbourhood context influences parenting [Duncan & Raudenbush, 1999; Furstenberg et al., 1999] and problematic behaviour of young people, such as heavy drinking or antisocial behaviour [Duncan et al., 1994; McLeod et al., 1994], which in their turn both influence educational outcomes [Astone & McLanahan, 1991; Kulka et al., 1982; McCluskey et al., 2002]. This suggests that the effects of neighbourhoods on educational achievement may (partly) work through parenting and problematic behaviour. The current study therefore will enquire whether and to which extent the association between neighbourhoods and educational outcomes is mediated by parenting and problematic behaviour. We do this by employing a stepwise approach, testing 1) the association between neighbourhoods and educational outcomes; 2) the association between neighbourhoods and parenting and problematic behaviour; and 3) the association between both neighbourhoods and parenting and problematic behaviour, and educational outcomes. Combining these three tests gives insight in the mediation process, since we know the direct association between neighbourhoods and educational outcomes, as well as the indirect effect through parenting and problematic behaviour. Because we derive our hypotheses also from these different steps, our modelling strategy integrates well with our theoretical approach.

THEORIES AND HYPOTHESES

Youth spend a significant part of their developing years in the neighbourhood, making it reasonable to suggest that characteristics of neighbourhood residents and the distribution of these characteristics affect adolescent development. However, research hitherto provides mixed results about the size and even the existence of neighbourhood effects. Besides, the exact workings of neighbourhood effects are unclear, which led to the proposition of several, sometimes overlapping mechanisms that try to explain how individual behaviour and attitudes are influenced by neighbourhood characteristics [Jencks & Mayer, 1990].

The contagion model encompasses the extent to which residents are influenced by their neighbours' behaviour and attitudes. When negative attitudes towards education are normal amongst many residents, they will more easily be considered as normal by other residents. Also, the persons having these attitudes are less likely to penalise the same attitudes in other people, e.g., when they see children skipping school, they are less likely to interfere since they hold the same attitude towards education. So, in neighbourhoods with more negative attitudes towards education, adolescents are more likely to adopt similar attitudes [Akers et al., 1979; Friedrichs & Blasius, 2005]. A related model is collective socialisation, which deals with the ability of residents to collectively solve social problems in the neighbourhood by influencing the behaviour of neighbours that do not conform to certain norms. Neighbourhoods with more social cohesion and a higher willingness of residents to intervene in undesirable situations, are better able to enforce certain norms [Sampson et al., 1997], for example norms about the importance of education for possibilities later in life.

Conflict theory predicts more disorder for neighbourhoods with higher ethnic or income diversity. People attain their identity by categorising themselves and others in different groups [Taifel, 1982]. In case of competition over scarce resources like jobs or neighbourhood facilities, people tend to perceive out-group members as a threat [LeVine & Campbell, 1972; Putnam, 2007], leading to socially disorganised neighbourhoods, wherein crime and violence are more likely [Morenoff et al., 2001]. Such disorderly neighbourhoods expose its adolescent residents to deviant behaviour and negative attitudes towards education. This relates back to the contagion model and collective socialisation, since the presence of such behaviour and attitudes leads to adoption by other residents, and because of the neighbourhood disorder, residents are less able to control deviant behaviour or enforce positive norms about education.

In neighbourhood effects studies, much attention is given to selection effects [Dietz, 2002], i.e., that families sort into neighbourhoods according to their preferences and economic constraints. Consequently, neighbourhoods are not random selections of people, but cluster on socio-economic status or ethnicity. An implication of

this selection bias is that found effects on the neighbourhood-level could actually pertain to the family, especially when family characteristics are not sufficiently taken into account in the analysis.

While the before mentioned mechanisms are mainly constructed to account for direct neighbourhood effects, we study how neighbourhood effects on educational outcomes are mediated by parenting behaviours and problematic behaviour. Arguments are made below for the relationship between the neighbourhood and the mediator, followed by the relationship between the mediator and adolescent educational outcomes, for parenting and problematic behaviour, respectively.

The neighbourhood can influence parenting strategies in different ways. Since parents in high poverty neighbourhoods perceive more detrimental neighbourhood effects for their children [Galster & Santiago, 2006], they may use more protective parenting strategies, to shield their children from the neighbourhood's negative influence [Furstenberg et al., 1999]. A similar reasoning applies for neighbourhoods with higher ethnic diversity: conflict theory argues that more heterogeneity enhances out-group distrust and in-group solidarity. In case of competition over scarce resources people tend to trust others who are similar to themselves (in-group members), while the presence of people of different ethnicity (out-group members) can be perceived as a threat, therewith increasing anxiety and distrust [Bauman, 1993; LeVine & Campbell, 1972; Putnam, 2007]. This can lead parents to apply more protective parenting strategies, to guard their children from out-group influence. By applying stricter monitoring strategies, parents can minimise the effect deviant neighbourhood peers may have on their children, thus attempting to control the influences to which their children are exposed, despite the bad neighbourhood in which they live [Furstenberg et al., 1999; Jarrett, 1997]. Also, it has been observed that concerned parents may restrict their young children's outside playing activities to places where they can exert more supervision (eg the backyard), in order to provide a safer environment [Pinkster & Fortuijn, 2009; Valentine & McKendrick, 1997]. To summarise, we expect that parents in poor neighbourhoods may apply stricter monitoring strategies than parents in more affluent neighbourhoods. In general, deficiency of control and supervision can result in behavioural problems in school [McLanahan, 1985], since deviant behaviour like skipping class may go unnoticed by parents, and are thus unlikely to be penalised. Behavioural problems in school, like skipping class, aggressive behaviour, or substance abuse are expected to be harmful for ones educational achievement.

Besides control, how much parents support their children is another dimension of parenting [Maccoby & Martin, 1983] that is subject to neighbourhood influence. The family stress model [Hill, 1949] predicts that low family SES, economic problems and uncertainty in the family lead to stress for the parents, resulting in conflict and poorer mental health. Consequently, this can result in altered parenting behaviour [Conger et al., 1994; Kohen et al., 2008]. Applying this model

to the neighbourhood-scale implies that living in poor, heterogeneous and disorderly neighbourhoods increases parental stress and negatively affects parental mental health, resulting in a higher likelihood for harsh, inconsistent, and less supportive parenting [Downey & Coyne, 1990; Kohen et al., 2008; McLoyd, 1998]. For example, findings indicate that poor neighbourhoods are associated with higher rates of maternal depression, and less maternal warmth and responsiveness [Klebanov et al., 1994]. In addition, a lack of community in neighbourhoods implies less social control on parental behaviour, increasing the likelihood for child maltreatment and unsupportive parenting [Coulton et al., 1995]. Besides, in poor environments, parents may have lower expectations for their children's educational future, because in their environment, they perceive few examples of educational success [Astone & McLanahan, 1991; Henry et al., 2011]. When parents have less expectations, this may reflect in their parenting, which may be less supportive and involved.

Supporting their children's educational development is a way for parents to transmit their educational aspirations onto their children. By providing support and being available and involved, parents are more likely to successfully transmit their educational aspirations than when they are absent or indifferent to the child's education [Astone & McLanahan, 1991; Clark, 1983]. Furthermore, parental involvement in school activities and contact with school personnel can serve as social constraints through which parents are influenced to emphasise the importance of education toward their children [Coleman, 1988; McNeal, 1999]. Involvement in school is more likely for higher class parents; lower class parents may not possess the linguistic competences and cognitive skills to communicate effectively with educational personnel and to understand the educational process [Lareau, 2003].

Besides parenting, we suggest that also adolescent problematic behaviour mediates the relation between neighbourhood characteristics and educational outcomes. Existing literature is not yet agreeing on the role of problematic behaviour in neighbourhoods; some studies find no effect of neighbourhoods on problematic behaviour [Brooks-Gunn et al., 1993]. However, since others do find a relation [Duncan et al., 1994; McLeod et al., 1994], we theorise how the relation between neighbourhoods and behavioural problems may work. First, to connect to the above discussion of parenting behaviour, the role of the parents is considered. As described above, as a result of poverty, ethnic heterogeneity, and uncertainty in the neighbourhood, parents can experience more stress and poorer mental health, which they can transmit to their children through higher levels of child maltreatment and unsupportive parenting [Conger et al., 1994; Hill, 1949; Kohen et al., 2008]. Higher stress in the family and negative parenting may result in more adolescent behavioural problems and lower self-esteem [Kohen et al., 2008; Maccoby & Martin, 1983; Siffert et al., 2012].

Second, youth living in disadvantaged neighbourhoods often feel socially isolated, stigmatised and unrecognised by society [Sampson

& Raudenbush, 2004; Wacquant, 2008; Wilson, 1987]. They perceive little future possibilities, because their direct environment does not provide good examples of people that are performing well in education and that are moving upward socially [Ainsworth, 2002]. This may lead to negative attitudes towards education, because the importance of education for upward social mobility is not recognised [MacLeod, 1987]. The lack of future possibilities may increase the feeling of being misrecognised by society, and frustration about being denied the same chances other, more affluent, members of society have [Honneth, 1995]. This can lead to loss of self-esteem [Honneth, 1995], which may lead to higher levels of behavioural problems [Donnellan et al., 2005; Wissink et al., 2008]. Furthermore, it can motivate youth to seek recognition elsewhere. If recognition is not found in education, because of the lack of good role models in the neighbourhood, as a substitute adolescents may seek membership of deviant peer groups where status attainment and recognition is reached through violent behaviour [Staff & Kreager, 2008; Willis, 1977]. That neighbourhood disadvantage leads to a higher likelihood for deviant peer group membership is supported by the literature [Ge et al., 2002]. Membership of such deviant groups may socialise youth into an attitude that violent behaviour is acceptable [Jencks & Mayer, 1990], which in turn might even strengthen the affiliation with the deviant peer group [Simons et al., 2007]. Besides, positive attitudes towards violence are likely to also lead to more problematic behaviour in the school environment, therewith diminishing the chances to succeed in education even further. Adolescents living in disadvantaged and heterogeneous neighbourhoods are more likely to be exposed to such peer groups, since neighbourhood members are less able to intervene in problematic behaviour of neighbourhood youth [Sampson et al., 1997; Johnson, 2010].

Since research shows that problematic behaviour like substance use and violence is associated with less educational success [Carroll et al., 2009; Kulka et al., 1982; McCluskey et al., 2002], it is likely that neighbourhood effects on education are mediated by problem behaviour. Youth showing problematic behaviour or who are involved in peer groups that embrace violent behaviour, often have negative attitudes towards education, therefore putting less effort in school and skipping class more often. These negative attitudes towards education are related to transitions towards adult roles as jobs and family life in an early stage in the life-course [McCluskey et al., 2002; Newcomb and Bentler, 1988]. Having a family early in life can lead to the necessity of a job to support the family, and valuing a job over education can lead to putting less effort into education. Therefore, both negative attitudes towards education gained in the peer group, as early transitions to adult roles are likely to lead to a lower likelihood for educational success.

Concluding, neighbourhood research has often investigated the direct relationship between neighbourhoods and individual school outcomes, however, as argued above, this relationship is likely to

be mediated by parenting behaviours and problematic behaviour. Investigating this will give both deeper insight in how the neighbourhood influences youth, and in the reasons for adolescent educational success or failure.

DATA AND METHOD

Data

To study neighbourhood effects on individual outcomes, we have combined data from two sources providing with neighbourhood data and individual data, respectively. For the individual data, this study uses the Health Behaviour in School-aged Children (HBSC) dataset of 2009 for the Netherlands [www.hbsc-nederland.nl]. The Dutch survey is collected by the Trimbos Institute, and is part of a worldwide project under supervision of the World Health Organisation (WHO), in which every four years the same data are collected for 43 countries [www.hbsc.org]. The Dutch sample is selected using a random stratified method. First, all regular high schools are stratified according to four levels of urbanisation, to attain good dispersion of city and countryside. Hereafter, schools were randomly selected, weighted according to the amount of schools within every of the urbanisation levels. Of the 143 selected schools, 68 were willing to participate (48 percent). Differences between participating and non-participating schools in educational level did not lead to bias, because this was compensated when selecting classes within schools. Besides, schools did not differ on ethnic composition. For each school, one school class was randomly selected from every of the first four academic years (264 school classes). All students in the class were selected for participation, effectively ending with 5734 respondents. the mean age of the sample is 13.8 years. Because this research deals with problem behaviour and educational outcomes, non-response because of skipping class could be a problem. Since students who skip class might score higher on problem behaviour and lower on educational level, attrition due to skipping class could lead to an underestimation of the association between problem behaviour and educational level. However, of the 440 students who were absent during the time the questionnaire was taken, 93.4 percent reported sickness. Only 26 of the students did not have a valid reason for their absence (5.9 percent of the absent students). Because of this small number, we do not expect attrition due to skipping class to distort our results. Additionally, the students' parents were surveyed by handing an additional questionnaire to the students, which their parents could send back to the researchers. Of the total of 5734 parent questionnaires, 3034 were filled in (53 percent). The parents that did and did not respond did not differ in gender, and only slightly in age. However, there is an underrepresentation of non-western immigrants and lower educated parents, which might bias the results to some extent [Van Dorsselaer et al., 2010]. By listwise deleting cases with missing

variables, the final sample size is 2683.

To inquire into neighbourhood effects, population based data for 2009 from Statistics Netherlands are used [Statistics Netherlands, 2011]. These data are organized according to the neighbourhood stratification method. However, the HBSC data only contains four position postcodes (on average approximately 2000 households), therefore the Statistics Netherlands data are transformed into four position postcode area information by using the most common postcode in a neighbourhood. 91 percent of our postcode areas have a strong overlap with the 'neighbourhoods' as delineated by Statistics Netherlands. The rest differ to some extent.

Dependent variable

The dependent variable is adolescents' high school educational level, which is measured on a four category ordinal scale:

1. preparatory vocational education (n = 306);
2. preparatory lower theoretical education (n = 846);
3. preparatory higher theoretical education (n = 728);
4. pre-university education (n = 803).

These are the four regular educational levels in the Netherlands. Combinations of levels are possible. Student are then categorised in the lowest level. In the Dutch educational system, all levels comprise at least four years of education, but since the data contain only information about students from the first four years of high school, the age distribution for every level is similar.

Neighbourhood-level variables

On the neighbourhood-level, three variables are used in the analyses, taken from the Statistics Netherlands [2011] data. As measures for the neighbourhood composition, the proportions of Western and non-Western immigrants are measured as a proportion of the total population within a four position postcode area. The used definition of immigrants is taken from the standard definition of Statistics Netherlands [Keij, 2000], and is also the only way in which they release their data. An immigrant is a person of whom at least one parent is foreign-born. Western immigrants are from Europe, North America, Oceania, Japan, or Indonesia. Non-Western immigrants are Turkey, Africa, Latin America, or Asia. Based on their socio-economic or socio-cultural similarity to the Dutch population, immigrants from Japan and Indonesia are counted as Western immigrants. The Japanese group is small and mainly consists of employees of Japanese companies and their families. Indonesians are generally Dutch descendants born in the Dutch East Indies. For descriptive information on these and other variables see table 1.

The mean property value of dwellings in the neighbourhood is derived from the tax register and is used as a proxy to measure neighbourhood wealth, since it captures the quality of the dwelling

and the social and physical attributes of the neighbourhood [Visser et al., 2008]. This measure excludes property that is used primarily for non-living purposes, even though people may reside there as well, like for example farms. The variable is standardised.

Individual-level variables

The HBSC dataset provides data for the individual-level variables. Parenting behaviours are derived from the parent questionnaire. Support is measured using the five-point scale answers on questions about how much parents agreed with the following three statements: "I display admiration for my child"; "I display love for my child"; and "I support my child with what he/she is doing". These questions are combined into a scale (Cronbach's α: .72).

Parental control is operationalised with two variables: monitoring and permissiveness. Monitoring is a scale made of three questions with five answering categories: "Before your child leaves the house, do you want to know with whom and where your child is?"; "Does your child need permission to leave to be away at night?"; and "When your child went away at night, do you afterwards want to know with whom and where he/she has been?" (Cronbach's α: .60).

Permissiveness is a scale which measures parental permissiveness about the adolescent's smoking and drinking behaviour. Three questions on smoking with five answering categories: "My child is allowed to have a puff of a cigarette"; "My child is allowed to now and then smoke a cigarette"; and "My child is allowed to regularly smoke". And four questions about alcohol: "My child is allowed to drink one glass of alcohol when my partner or I is home"; "My child is allowed to drink several glasses of alcohol when my partner or I is home"; "My child is allowed to drink alcohol on a party with his/her friends"; and "My child is allowed to drink alcohol in the weekend" (Cronbach's α: .86).

Problematic behaviour is operationalised as binge drinking and violent behaviour. Binge drinking is a dichotomous variable that measures whether the respondent drank five or more glasses of alcohol on one occasion in the past month. Violent behaviour is a dichotomous variable measuring whether the respondent was involved in a fight in the last 12 months.

Control variables

Control variables are added to the analyses for grade, gender, ethnicity, and parental education. Grade measures in which academic year an adolescent is, and is added because parenting behaviours and problem behaviour may vary over different years. Gender is a dummy with 'boy' coded as 1. Ethnicity is divided in three dummy variables: 'Dutch', 'Western (non-Dutch)', and 'Non-Western'. A respondent scores non-zero on the latter two categories when he/she, or at least one of his/her parents is foreign-born, which is in accordance with the definition of immigrants used by Statistics Netherlands. Ethnicity is controlled for because parenting behaviours differ between people

from different ethnic background [Hofstede & McCrae, 2004]. Parental education is always an important predictor of children's education [Furstenberg et al., 1999], making it necessary to control for. Parental education is made into four dummies:

1. 'preparatory vocational or lower';
2. 'high school';
3. 'vocational'; and
4. 'higher vocational/university'.

Method

Variables are available on two levels: the neighbourhood-level and individual-level. Because individual respondents are nested within neighbourhoods, the most appropriate method to analyse the data is with multilevel techniques [Hox, 2002]. And, because of the ordinal nature of educational level, an ordered logistic variant of multilevel analysis is used. This method returns threshold values, which are used to differentiate the four categories of educational outcomes. To fit the models with dichotomous variables 'binge drinking' and 'violence' as dependent variables, logistic multilevel analyses are used.[2] All models are fitted using Stata 11.2.

We test our hypotheses of mediation using a stepwise approach [Baron and Kenny, 1986]. We first regress the dependent variable (educational level) on the independent (neighbourhood) variables [Table 3]. Next we regress the mediator variables on the independent variables [Tables 4 and 5]. Finally, we regress the dependent variable on both the independent and the mediator variables [parenting and problematic behaviour; Table 6]. Mediation is possible when the dependent variable is affected by both the independent variables and the mediators, and when the mediators are affected by independent variables. Although some of the mediators show little neighbourhood-level variance, to keep the models comparable, they are all fitted using multilevel regression [Krull & MacKinnon, 2001].

RESULTS

We begin the analyses by inspecting the intercept-only models for the dependent and mediator variables [Table 2], which give insight into neighbourhood-level clustering and the distribution of variance. The data are structured into two levels, with neighbourhoods at the highest level and individuals at the lowest. For logistic multilevel models,

2. The presented analyses assume slope coefficient to be the same between neighbourhoods. Random slope models for parenting and problematic behaviour were also tested, but hardly resulted in better model fits. Only the random slope model for binge drinking improved the model significantly compared to the model without random slopes. However, because the interpretation of the variables did not change, we decided only to present the models without random slopes for consistency.

TABLE 1
Descriptive statistics of the variables.

Variable name	N	Mean	SD	Min.	Max.
Neighbourhood-level [1]	**785**				
Proportion Western immigrants	785	.08	.05	.01	.30
Proportion non-Western immigrants	785	.07	.10	0	.85
Property value	785	.00	1.00	-2.12	6.30
Individual-level [2]	**2683**				
Educational level (dependent variable)	2683	2.76	1.01	1	4
Parental support (mediator variable)	2683	4.41	.53	1	5
Parental monitoring (mediator variable)	2683	4.79	.39	2	5
Parental permissiveness (mediator variable)	2683	1.49	.69	1	5
Binge drinking (mediator variable)	2683	.25	.43	0	1
Violence (mediator variable)	2683	.27	.45	0	1
Grade	2683	2.44	1.11	1	4
Gender (1 = boy)	2683	.47		0	1
Ethnicity: Dutch	2683	.91		0	1
Non-Western	2683	.06		0	1
Western (non-Dutch)	2683	.03		0	1
Parental education:					
Preparatory vocational or lower	2683	.16		0	1
High school	2683	.08		0	1
Vocational	2683	.30		0	1
Higher vocational/university	2683	.46		0	1

Source: [1]Statistics Netherlands, [2]HBSC, 2009

the variance at the individual-level (σ_e^2) is fixed, as is standard in such models. Besides, the neighbourhood-level variance (σ_{u0}^2) is reported. On inspection of intraclass correlations (ρ) we see that educational level is strongly clustered within neighbourhoods, since 79 percent of the variance is at the neighbourhood-level. Of the proposed mediating variables, binge drinking shows the most neighbourhood clustering (13 percent). Violence and parenting behaviours show little clustering (1–3 percent). The proceedings will test if and to what extent parenting behaviours and problem behaviour mediate the association of neighbourhood characteristics with educational achievement.

First, neighbourhood effects are assessed to enquire into the direct association of the neighbourhood with adolescents' educational level. Table 3 shows that the specified neighbourhood-level variables are significantly associated with the educational level. While controlling for adolescents' own ethnicity, the strongest neighbourhood-level predictors are the proportions of immigrant groups in neighbourhoods. The proportion of Western immigrants displays a strong positive association with educational level, while the proportion of non-Western immigrants shows a negative association.

Higher mean property value in neighbourhoods is associated with higher educational levels. This is in line with the contagion model, since higher educated people are more likely to dwell in higher valued property, leading to more opportunities for youth to adopt positive values towards education.

Next, we fit models that test neighbourhood effects on the mediator variables to be able to construct the whole path of neighbourhood effects on educational level, mediated by parenting and problematic behaviour [Tables 4 and 5]. When fitting the intercept-only models, we already established that parenting behaviours show only little clustering within neighbourhoods. However, we do find effects for the percentage of immigrants. First, the proportion of Western immigrants is associated with more parental support and monitoring, and second, the proportion of non-Western immigrants is associated with more parental support and permissiveness. Property value does not seem to predict parenting behaviours. This does not support the idea that parents change their parenting behaviours based on neighbourhood poverty, however, parenting behaviours are associated with the ethnic composition of the residents.

The control variables indicate that when children grow older, their parents show less support, monitor less, and allow more. Boys are monitored and supported less. And, the higher educated parents are, the less permissive they are. For support and monitoring, parental education shows less clear results, although it hints to the conclusion that lower educated parents monitor less, and are less supportive. Ethnicity does not seem to affect parenting behaviours.

Returning to neighbourhood effects, problematic behaviour seems to be strongest associated with the proportion of Western immigrants: the higher the percentage of Western immigrants, the lower the likelihood for adolescent binge drinking and violent behaviour.

No effects are found for the proportion of non-Western immigrants and property value. The results are unsupportive of the hypothesised idea that poor neighbourhoods lead to higher adoption of problematic behaviour. The control variables show more problematic behaviour for boys and children of lower educated parents. Older children are more likely to drink problematically, and less likely to show violent behaviour.

Finally, we fit the model on educational level, including the mediator variables, parenting behaviours and problematic behaviour [Table 6]. This does not change the neighbourhood-level coefficients significantly [cf Table 3], suggesting only partial mediation and emphasising the robust effects of the neighbourhood variables. Besides, adding parenting and problematic behaviour explains 3 percent of the neighbourhood-level variance. The latter is in line with the small amount of clustering found in Table 2.

The associations of parenting and problematic behaviour with adolescents' educational level are assessed to acquire a total picture of the extent to which they are able to mediate the effect of neighbourhood characteristics. Of parenting behaviours, firstly, smoking and alcohol-specific permissiveness seems to have an effect: higher parental permissiveness is associated with a lower educational level for adolescents. This finding supports the idea that the lack of parental control can lead to more behavioural problems in school, which is associated with lower achievement. Secondly, parental support is positively associated with adolescents' educational level, which is in line with the idea that more supportive parents more effectively convey the importance of education to their child.

Violence and binge drinking both show the predicted negative association with educational level. It is likely that there is an effect of parenting behaviours on problematic behaviour, so by adding both to the model, the relationship between the two is controlled for, also considering that they do not correlate very high. Parental education shows the expected association with adolescents' education: higher parental educational levels are related to higher adolescents' educational levels.

Because we are interested in the extent to which neighbourhood effects are mediated by parenting and problematic behaviour, we need to look to the mediators that are both predicted by neighbourhood variables, and have an association with the adolescents' educational level. Property value is associated with educational level, but does not predict any of the mediating variables, and consequently is thus not mediated by parenting behaviours and problematic behaviour.

The proportion of Western immigrants is positively associated with parental support, and support is positively associated with level of education. This suggests an indirect effect, since an increase in proportion of Western immigrants is associated with more parental support, which is associated with a higher level of education. Besides, the proportion of Western immigrants is negatively associated with

binge drinking and violence, which both are negatively associated with educational level. This thus also suggests an indirect effect, since an increase in proportion of Western immigrants is associated with less binge drinking and violence, and less binge drinking and violence is associated with a higher level of education. However, we also see that the coefficient of the proportion of Western immigrants does not change between the models without and with the mediator variables. Therefore, we must draw the conclusion that this neighbourhood-level variable is not mediated by parenting behaviours or problematic behaviour.

Furthermore, the proportion of non-Western immigrants decreases the likelihood for smoking and alcohol-specific permissiveness of parents, which in turn is negatively associated with adolescents' educational level. The indirect effect is that an increase in the proportion of non-Western immigrants is associated with less smoking and alcohol-specific permissiveness, which is associated with an higher educational level. Also, the proportion of non-Western immigrants increases the likelihood for parental support, which is positively associated with educational level. This also suggests an indirect effect: a higher proportion of non-Western immigrants is associated with more parental support, which is associated with a higher educational level. Again however, there is no significant change in the coefficient, suggesting that also the proportion of non-Western immigrants in the neighbourhood is not mediated by parenting behaviours or problematic behaviour.

TABLE 2
Intercept-only model information (N = 2683).

Dep. Variable	Education level	Binge drinking	Violence	Parental support	Parental monitoring	Parental permissiveness
Method	**Ordered logit**	**Logit**	**Logit**	**Linear**	**Linear**	**Linear**
σ_{u0}^2	12.64 (1.21)	.51 (.13)	.07 (.07)	.00 (.00)	.00 (.00)	.01 (.01)
σ_e^2	3.29 (fixed)	3.29 (fixed)	3.29 (fixed)	.28 (.01)	.15 (.00)	.46 (.01)
P	.79	.13	.02	.01	.03	.03
Log lik.	-2809.67	-1475.06	-1571.15	-2120.28	-1286.72	-2798.05

Source: [1] Statistics Netherlands; [2] HBSC, 2009

TABLE 3
Ordered logistic two-level model on educational level without mediator variables (*N* = 2683).

	Model without mediators
	coeff. (s.e.)
Neighbourhood-level	
Proportion Western immigrants	19.05 (3.09)**
Proportion non-Western immigrants	-5.34 (1.54)**
Property value	.37 (.14)**
Individual-level	
Grade	-.01 (.05)
Gender (1 = boy)	-.08 (.10)
Ethnicity (ref.: Dutch)	
Non-Western	-.02 (.23)
Western (non-Dutch)	.37 (.27)
Parental education (ref.: higher vocational/university)	
Preparatory vocational or lower	-1.42 (.16)**
High school	-.63 (.19)**
Vocational	-.91 (.12)**
Threshold 1	-3.69 (.31)**
Threshold 2	-.24 (.30)
Threshold 3	2.85 (.31)**
Variance at neighbourhood-level (σ_{u0}^2)	9.80 (.99)**
Variance at individual-level (σ_e^2)	3.29 (fixed)
Log likelihood	-2723.10

** **p < 0.01** * **p < 0.05**

TABLE 4
Two-level models on parenting behaviours (*N* = 2683).

	M1: Parental support	M2: Parental Monitoring	M3: Parental Permissiveness
	coeff. (s.e.)	**coeff.** (s.e.)	**coeff.** (s.e.)
Neighbourhood-level			
Proportion Western immigrants	.52 (.24)*	.49 (.18)**	.06 (.29)
Proportion non-Western immigrants	.55 (.17)**	.14 (.12)	-.59 (.20)**
Property value	.01 (.01)	.00 (.01)	.02 (.01)
Individual-level			
Grade	-.04 (.01)**	-.05 (.01)**	.24 (.01)**
Gender (1 = boy)	-.04 (.02)*	-.04 (.01)**	-.04 (.02)
Ethnicity (ref.: Dutch)			
Non-Western	.01 (.05)	-.01 (.03)	-.10 (.05)
Western (non-Dutch)	-.01 (.06)	.06 (.04)	-.03 (.07)
Parental education (ref.: higher vocational/university)			
Preparatory vocational or lower	-.05 (.03)	-.08 (.02)**	.22 (.04)**
High school	.01 (.04)	-.02 (.03)	.16 (.05)**
Vocational	-.07 (.02)**	.03 (.02)	.15 (.03)**
Constant	4.48 (.04)**	4.90 (.03)**	.86 (.04)**
Variance at neighbourhood-level (σ_{u0}^2)	.00 (.00)	.00 (.00)	.00 (.01)
Variance at individual-level (σ_e^2)	.28 (.01)**	.15 (.00)**	.38 (.01)**
Log likelihood	-2087.85	-1240.98	-2532.63**

****p < 0.01** ***p < 0.05**

TABLE 5
Logistic two-level models on problematic behaviour (N = 2683).

	M1: Binge drinking	**M2: Violence**
	coeff. (s.e.)	**coeff.** (s.e.)
Neighbourhood-level		
Proportion Western immigrants	-2.83 (1.42)*	-2.58 (1.11)*
Proportion non-Western immigrants	-.42 (.92)	.70 (.71)
Property value	.05 (.06)	-.03 (.05)
Individual-level		
Grade	.84 (.05)**	-.09 (.04)*
Gender (1 = boy)	.32 (.10)**	1.37 (.09)**
Ethnicity (ref.: Dutch)		
Non-Western	-.25 (.26)	.38 (.20)
Western (non-Dutch)	.06 (.30)	-.01 (.26)
Parental education (ref.: higher vocational/university)		
Preparatory vocational or lower	.91 (.15)**	.48 (.13)**
High school	.37 (.21)	.18 (.18)
Vocational	.47 (.13)**	.16 (.11)
Constant	-3.72 (.22)**	-1.54 (.16)**
Variance at neighbourhood-level (σ_{u0}^2)	.41 (.13)**	.00 (.00)
Variance at individual-level (σ_e^2)	3.29 (fixed)	3.29 (fixed)
Log likelihood	-1288.79	-1441.96

** **p < 0.01** * **p < 0.05**

TABLE 6
Ordered logistic two-level models on educational level with and without mediator variables (*N* = 2683).

	Model without mediators	Model with mediators
	coeff. (s.e.)	coeff. (s.e.)
Neighbourhood-level		
Proportion Western immigrants	19.05 (3.09)**	18.70 (3.05)**
Proportion non-Western immigrants	-5.34 (1.54)**	-5.62 (1.53)**
Property value	.37 (.14)**	.37 (.14)**
Individual-level		
Parental support		.18 (.09)*
Parental monitoring		-.21 (.13)
Parental permissiveness		-.29 (.08)**
Binge drinking		-.72 (.13)**
Violence		-.28 (.12)*
Grade	-.01 (.05)	.16 (.05)**
Gender (1 = boy)	-.08 (.10)	-.01 (.10)
Ethnicity (ref.: Dutch)		
Non-Western	-.02 (.23)	-.03 (.23)
Western (non-Dutch)	.37 (.27)	.44 (.28)
Parental education (ref.: higher vocational/university)		
Preparatory vocational or lower	-1.42 (.16)**	-1.32 (.16)**
High school	-.63 (.19)**	-.58 (.19)**
Vocational	-.91 (.12)**	-.87 (.12)**
Threshold 1	-3.69 (.31)**	-4.20 (.79)**
Threshold 2	-.24 (.30)	-.22 (.77)
Threshold 3	2.85 (.31)**	2.43 (.78)**
Variance at neighbourhood-level (σ_{u0}^2)	9.80 (.99)**	9.51 (.97)**
Variance at individual-level (σ_e^2)	3.29 (fixed)	3.29 (fixed)
Log likelihood	-2723.10	-2687.27**

** **p < 0.01** * **p < 0.05**

CONCLUSION AND DISCUSSION

The goal of this paper was to find out whether neighbourhood effects are mediated by parenting behaviours and problematic behaviour. The established results do not seem to support this idea. The three investigated neighbourhood characteristics (the proportion of Western immigrants, the proportion of non-Western immigrants, and mean property value) all have an independent direct influence on educational achievement, even after controlling for a wide variety of individual and family characteristics. However, there are no changes in these associations after adding the mediator variables to the model. Thus, no support is found for our hypothesis that neighbourhood effects are mediated by parenting behaviours and problematic behaviour.

Although there is no support for the hypothesis about the mediation of neighbourhood effects, our analyses provide other interesting findings. We found clear support for the idea that neighbourhood characteristics are associated with educational outcomes. First, more advantaged neighbourhoods are associated with higher educational outcomes of adolescents. Second, a higher proportion of non-Western immigrants is associated with lower educational outcomes. And third, a higher proportion of Western immigrants is associated with higher educational outcomes of adolescents. Western immigrants are a group that is, when looking at income, comparable to the Dutch natives [CBS StatLine, 2010]. However, it is a group that for the larger part came to the Netherlands to pursue their career, and because they are willing to migrate for their job, they probably have positive attitudes towards career building and therefore are likely to also understand the importance of education for future possibilities. Because of this disposition, it is likely that they are more supportive when it comes to their child's education and monitor their child more to prevent problematic behaviour. A neighbourhood with a bigger proportion of Western immigrants may therefore have a positive direct association with the educational level of its adolescent residents, because of the higher exposure to residents with positive attitudes towards education.

The analyses also provide clues for the literature investigating neighbourhood effects on parenting behaviours. No support was found for the expectation that poorer neighbourhoods would be associated with parents being more controlling and less supportive. The composition of the neighbourhood population is found to be of greater importance. An increase in both Western and non-Western immigrants is associated with a higher likelihood for parental support; an increase in Western immigrants is associated with a higher monitoring of the adolescents' friends; and an increase in non-Western immigrants is associated with more restrictions on the child's behaviour. These findings are in line with the prediction that increased ethnic heterogeneity leads to more protective parenting strategies, since parents want to safeguard their children from, what they assume to be, negative out-group influence [Furstenberg et al., 1999; Jarrett, 1997]. That parents are more supportive in neighbourhoods

with higher proportions of non-Western immigrants could possibly be explained by different cultural backgrounds: non-Western immigrants are more collectivistic compared to the Dutch [Hofstede & McCrae, 2004], meaning that neighbourhood relationships are likely to be more close-knit, making social control on parental behaviour easier. Interesting is that our findings seem to support the idea that parents adapt their parenting behaviours to the neighbourhood conditions [Furstenberg et al., 1999], but they seem unable to change the relationship between neighbourhood characteristics and their children's educational outcomes.

A note regarding the causality of the relation between problematic behaviour, parenting, and adolescents' educational level is appropriate. We argue how problematic behaviour might affect educational success, but the opposite order is also probable. Lower level school classes are more likely to contain children with behavioural problems [Van Dorsselaer et al., 2010], therefore children in lower level classes have more exposure to problem behaviour, making it more likely that they copy this behaviour [Akers et al., 1979]. By this reasoning, children that end up in a lower educational level because of their behavioural problems, are affected by the group to show even more problematic behaviour. Similar reasoning is possible for parenting behaviours. Parents might adjust their behaviour based on their child's school achievement, e.g., if the child performs poorly, parents might react by being more strict. It is likely that problem behaviour, parenting behaviours, and educational level influence each other, making causal claims difficult.

Also, an argument can be made that certain parents choose to live in certain neighbourhoods which they judge an appropriate place to raise their children. When the effects of the neighbourhood and parental characteristics correlate, spurious neighbourhood effects can be found that are actually family effects. Families sort into neighbourhoods according to their opportunities and constraints. High property values attract families with high income. Parents with high income usually also have a higher education, which in general is an important indicator for children's education. Having considered this, the effect of property value on adolescents' educational level could possibly be ascribed to properties of the family. This selection bias is partly dealt with by controlling for parental education. Besides, the investigated parental characteristics (parenting behaviours) do not cluster within neighbourhoods, suggesting that parents do not sort into neighbourhoods based on parenting. However, with the current study, we cannot be conclusive about whether the found associations between neighbourhoods and educational achievement are the result of neighbourhood processes or of families' sorting into neighbourhoods. In future research we plan to test expectations by using longitudinal data, to look into the effect of changes in the neighbourhood, which would tell more about the validity of the found results.

Looking at peers' influence on behavioural problems, we only considered the neighbourhood as a context. However, peers may

also be found elsewhere, most prominently at school. With the used data we could not establish insight into where adolescents find their peers, and to what extent there is a difference in how peers from different contexts shape adolescent behaviour. Possibly, adolescents who are embedded in school-based peer groups may experience more pro-learning socialisation and may be discouraged from problematic behaviour [Haynie, 2001]. Consequently, adolescents that show antisocial behaviour find little approval in conventional peer groups, and are more likely to be accepted in violent groups outside of the school-context, where status is gained through violence, and not through educational results [Staff & Kreager, 2008]. Thus, different contexts provide with different peer groups which hold different norms, making further research into the context of peer groups desirable.

Omitted variable bias may be a problem for our analyses. As suggested above, school-context is important for adolescent development. Different studies find that neighbourhood effects disappear after controlling for school [Sykes & Musterd, 2011], that they remain [Bowen & Bowen, 1999], or that it depends on how the neighbourhood and school variables are measured [Owens, 2010; Pong & Hao, 2007]. With the current analyses, we cannot be certain that we did not overestimate the neighbourhood effect by spuriously assigning what would actually be school effects to neighbourhoods. A similar problem may exist with prior educational achievement. Neighbourhood residents may be clustered on level of education, so when omitting prior achievement, the found neighbourhood effects may result from educational heterogeneity amongst youth. However, this might be partly controlled for by including parental education, which can expected to be correlated with adolescents' prior achievement.

This paper provides new insight in how neighbourhoods are related to individual and family characteristics. Because often only direct effects are assessed, this paper provides more insight into indirect effects neighbourhoods have on social outcomes. Future research could look further into mediation by varying the investigated neighbourhood characteristics (eg social cohesion or residential mobility), by varying the mediators (eg adolescent personality types), or by varying the dependent variable (eg income). This study adds to the knowledge about the relationships between neighbourhood effects, educational outcomes, parenting behaviours, and problematic behaviour, therewith broadening the knowledge on how neighbourhoods interact with social and psychological characteristics.

ACKNOWLEDGEMENTS

We would like to thank Evelien Vermeulen [Trimbos-institute] for help with the dataset, and the members of the 'Poverty Neighbourhoods' working group at the ENHR2011 conference in Toulouse and the three anonymous reviewers of EPA for helpful comments.

CHAPTER 4

Neighbourhood effects on educational attainment of adolescents

buffered by personality and educational commitment

Submitted for publication.

ABSTRACT

Research has repeatedly shown that neighbourhood disadvantage negatively influences individual educational outcomes. However, the great variation in outcomes indicates substantial unobserved heterogeneity. Looking at the rates of obtaining a basic educational qualification, the hypothesis is that individual traits of adolescents can buffer neighbourhood effects. First, adolescents with a more resilient personality may be better able to cope with neighbourhood adversity. And second, educational commitments might buffer adolescents from negative neighbourhood influences. These hypotheses are tested employing survival analysis, using six wave panel data, containing information on ten years of adolescents' lives. The results show that resilients experience no negative influence of neighbourhood disadvantage, while both undercontrollers and overcontrollers do. And, the stronger adolescents' educational commitments, the less they experience the negative effect of neighbourhood adversity. In sum, neighbourhood effects are found, but not for everybody.

INTRODUCTION

Research on how the neighbourhood in which people live influences their social outcomes increased drastically over the past 25 years, and has led to a wide variety of mechanisms that may explain how neighbourhood effects work [Galster 2011; Van Ham et al. 2011]. However, despite this longstanding interest, the literature is still far from conclusive about the workings of the neighbourhood. Neighbourhood disadvantage has often been linked to individual educational outcomes, with mixed evidence [for reviews, see: Dietz, 2002; Jencks & Mayer, 1990; Johnson, 2010; Leventhal & Brooks-Gunn, 2000]. This variation in findings points at unmeasured individual characteristics. We suggest two commonly unmeasured individual attributes that may lead to different findings in neighbourhood effects research: a resilient personality type and educational commitments. First, people with more resilient personalities might differ substantially in their ability to cope with adverse neighbourhood effects, and second, adolescents might be buffered from negative neighbourhood effects by higher levels of educational commitment. Resilience and educational commitment may explain why some research finds a neighbourhood effect, while others are not able to find significant links.

A second reason for the variation in the findings of neighbourhood effects is the definition of the neighbourhood. Some studies use the district level to measure effects, others take the analyses down to the level of streets or blocks. Smaller delineations are likely to better represent the individually perceived neighbourhood, and might better when a local socialisation mechanism is in effect. However, a larger delineation may be more suitable when the neighbourhood effect is caused by outside stigmatisation and reputation [Kwan, 2012;

Oberwittler & Wikström, 2009]. We will test which of the two is more apt in identifying neighbourhood effects on educational outcomes.

THEORIES AND HYPOTHESES

We consider two individual attributes that we hypothesise to interact with the neighbourhood effect: personality types and educational commitment. Our specific educational outcome is 'the timing of obtaining a basic qualification'. This outcome enables us to develop hypotheses about study delay and school dropout. In the following we will first briefly discuss the neighbourhood effects literature on education, and subsequently we will hypothesise why personality type and educational commitment are likely to interact with this effect.

Neighbourhood effects

One of the important contexts for youth's development is the neighbourhood in which they grow up, since a significant part of their developing years are spent in there. There is a continuing discussion in neighbourhood effects literature about the mechanisms through which neighbourhoods might influence its residents' behaviour or attitudes [for extensive reviews, see e.g., Galster, 2012; Jencks & Mayer, 1990]. Whether neighbourhood characteristics influence individual educational outcomes is also subject to debate, however, review articles seem to suggest that there is an effect of the neighbourhood [see e.g., Dietz, 2002; Jencks & Mayer, 1990; Johnson, 2010; Leventhal & Brooks-Gunn, 2000]. Disadvantaged neighbourhoods are often marked by high levels of social disorder and low levels of residents' ability to enforce norms [Sampson & Raudenbush, 1999]. Besides, disadvantaged neighbourhoods with higher rates of unemployment have less positive adult role models showing the merits of education. Adolescents in such neighbourhoods are less likely to learn the importance of education [Ainsworth, 2002; Wilson, 1996]. Furthermore, when negative attitudes towards education are normal amongst neighbourhood residents, residents are less likely to interfere when they see, for example, adolescents skipping school, since they maintain the same attitudes. While on the other hand, skipping school would not go unnoticed in neighbourhoods where people value education [Akers et al., 1979]. This would mean that adolescents growing up in disadvantaged neighbourhoods are more likely to have negative attitudes towards education and behave accordingly, because they perceive less positive role models who could teach them the importance of education, and because they are less likely to be sanctioned in case of deviant behaviour. The hypothesis is that: *the higher the degree of disadvantage of the neighbourhood in which adolescents reside, the more delay they experience in obtaining a basic qualification* (H1).

Personality types

Within the neighbourhood context, studies have already looked into the relationship between neighbourhood effects and personality traits, mainly within the field of criminology. Examples are that the effects of impulsivity on delinquency are found to differ between high and low disadvantage neighbourhoods [Lynam et al., 2000; Meier et al., 2008; Zimmerman, 2010]; and furthermore that neighbourhood characteristics moderate the effect of low self-control on violent victimisation [Gibson, 2012], of hyperactivity, impulsivity, and attention difficulties on conduct problems [Zalot et al., 2009], and of thrill and adventure seeking and lack of premeditation on offending [Jones & Lynam, 2009]. These studies suggest the importance of including personality measures in neighbourhood research. However, research on neighbourhoods and educational outcomes has thus far neglected this. Besides, aforementioned studies rely on personality traits, while we employ a person-centred approach, using personality types. Personality types enable us to look at the differences between within-person configurations of a set of personality traits.

Studies on personality often distinguish three personality types: resilients, undercontrollers, and overcontrollers, which relate closely to the five broad personality dimensions of the Big Five [Caspi et al., 2005]: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience [McCrae & Costa, 1987]. Earlier research has consistently shown that the personality types have specific Big Five personality profiles, and can therefore be constructed directly from the Big Five personality dimensions [Klimstra et al., 2010; Mervielde & Asendorpf, 2000; Robins et al., 1996]. Resilients score high on all five personality dimensions, and highest on extraversion, conscientiousness, emotional stability, and openness to experience. Overcontrollers score highest on agreeableness, but lowest on extraversion and emotional stability. Undercontrollers score lowest on agreeableness and conscientiousness.

The three personality types score differently on ego-control and ego-resiliency [Block & Block, 1980]. Ego-control refers to the tendency to contain versus express emotional and motivational impulses, and ego-resiliency refers to the tendency to respond flexibly versus rigidly to environmental demands [Klimstra et al., 2010; Meeus et al., 2011]. Resilients are characterised by medium levels of ego-control and high levels of ego-resiliency. Undercontrollers and overcontrollers both score low on ego-resiliency, however, undercontrollers are marked by low levels of ego-control, whereas overcontrollers are marked by high levels of ego-control [Asendorpf et al., 2001; Caspi, 1998].

Resilients, the personality type with the highest level of ego-resiliency and a medium level of ego-control, are the group that is likely to most effectively cope with neighbourhood disadvantage. Resilients can respond flexibly and adaptively to environmental demands, whereas overcontrollers and undercontrollers are less able to respond flexibly in stressful situations. Neighbourhoods can be more stressful and demanding environments when exhibiting characteristics as

higher levels of poverty, higher levels of social and ethnic diversity, higher population density, or lower social status. We expect the negative influence of neighbourhood disadvantage on adolescents' educational outcomes to be weaker for resilients, since they are better able to cope with the negative influence exerted by neighbourhood disadvantage, compared to overcontrollers and undercontrollers. Our hypothesis is that: *resilients experience a weaker effect of neighbourhood disadvantage on the timing of obtaining a basic qualification than do overcontrollers and undercontroller* (H2).

Educational commitments

Identity formation is suggested to be a key developmental task of adolescence [Erikson, 1972]. We focus on one dimension of identity, namely commitment [Marcia, 1966]. Commitment can be divided into making commitments and identification with these commitments. Making commitments refers to the degree to which adolescents have made choices in various developmental domains, and are committed to these choices [Meeus, 2011]. Having commitments, however, is not the same as identifying with these commitments. Identification with commitments refers to the degree that adolescents identify themselves with, feel certain about, and internalise their commitments [Luyckx et al., 2006]. Because our research focusses on educational outcomes, we specifically look at identification with commitments in the educational domain. We will refer to this as educational commitment.

Stronger educational commitments are found to be related to a lower likelihood for study delays [Klimstra et al., 2012] and a lower likelihood to drop out of school [Germeijs & Verschueren, 2007; Robbins et al., 2004]. Besides, educational commitment is positively associated with the ability to adjust to the educational demands of the university [Luyckx et al., 2006], scholastic competences, work ethic and achievement motivation [Meeus et al., 2002]. Educational commitments are likely to be associated with educational attainment, hence our hypothesis: *the stronger the individual educational commitments, the earlier the timing of obtaining a basic qualification* (H3).

The strength of an adolescent's educational commitments indicates the goals and values that an adolescent has set for his/her life. Living in a disadvantaged neighbourhood may have a negative influence on educational attainment, however, strong educational commitments might buffer the negative influence of the neighbourhood. Even when the neighbourhood provides poor role models and its residents hold negative attitudes towards educational attainment, adolescents with more educational commitment will strive for better educational attainment. They may therefore experience less negative neighbourhood influence compared to adolescents who are less committed to education. We hypothesise that: *adolescents with stronger educational commitments experience a weaker effect of neighbourhood disadvantage on the timing of obtaining a basic qualification than do adolescents with weaker educational commitments* (H4).

Personality and educational commitments are believed to be related concepts. The Big Five personality traits are found to be associated with commitments [Klimstra et al., 2012; Luyckx et al., 2006]. To our knowledge, only Klimstra et al. [2012] studied educational outcomes by looking at personality traits and educational commitments at the same time. They found that educational commitment is positively associated with educational attainment, however, after adding the personality traits to the model, the association vanishes. Because we look at personality types (configurations of traits within individuals), we will assess whether testing personality types and educational commitment in one model has the same effect as one model with personality traits and educational commitment.

The two main hypotheses of this paper deal with the idea that the strength of the influence of neighbourhood characteristics on individual educational outcomes depends on individual traits; different people will experience a different neighbourhood effect. In this study we look at two individual traits in particular: a resilient personality (H2) and educational commitments (H4). Using interaction-terms between the individual traits and neighbourhood disadvantage, we are able to test our hypotheses.

DATA AND METHODS

Data

To test our hypotheses we use several data sources. The six waves of the Conflict and Management of Relationships (Conamore) data are used for individual-level data. For neighbourhood-level information we use data from The Netherlands Institute for Social Research and Statistics Netherlands. The Conamore data are a longitudinal dataset consisting of 1,313 respondents divided into an early-to-middle adolescent cohort (n = 923; 70.3%) who were on average 12.4 years of age at the first wave, and a middle-to-late adolescent cohort (n = 390; 29.7%) with an average age of 16.7 years. Respondents were recruited from twelve high schools in the province of Utrecht, The Netherlands. The first wave was collected in 2001/'02, and waves 1 through 5 were collected with a one year interval. The sixth wave was collected in 2009/'10 and included an additional Life History Calendar (LHC) with retrospective questions from the age of 12 until the timing of the sixth wave. The total age range for the sample is 12 to 24 years of age. In waves 1, 2, 3, 4, 5 and 6 the number of respondents was 1,313, 1,313, 1,293, 1,292, 1,275, and 1,026, respectively. For the first five waves, sample attrition was very low (1.2% across waves). Attrition for the sixth wave is bigger (20%), because of the larger gap between wave five and six, compared to the one-year gap between the earlier waves. After listwise deletion of cases with missing values, our sample size is N = 916.

The Conamore data include all six-digit postcodes where the respondents lived between their twelfth year and the date of the

data collection of the sixth wave. This offers the opportunity to combine postcode-level data with the individual-level data from the Conamore, enabling us to investigate the residential histories of the respondents. This neighbourhood-level data come from two sources. The Netherlands Institute for Social Research [SCP, 1998] provides information on four-digit postcode areas. Statistics Netherlands [CBS, 2006, 2011] provides data on six-digit postcode areas. Four and six-digit postcode areas are comparable in the sense that four-digit postcode areas are aggregations of six-digit postcode areas.

Dependent variable

The dependent variable is the timing of obtaining a basic qualification. A basic qualification in the Netherlands is defined as a qualification at the second level of senior secondary vocational education (*mbo-2*), senior general secondary education (*havo*), pre-university education (*vwo*), which are the minimal educational requirements for finding a job [CBS, 2012]. Individuals who do not obtain a basic qualification before leaving school are considered early school leavers. We use the timing of obtaining a basic qualification as a measure for study delay. Respondents filled in the month and year of obtaining the qualification in the LHC, which we used to determine the timing of obtaining the qualification. Respondents who did not obtain a basic qualification at the time when wave 6 was collected are considered not to be right-censored (10% of the sample).

Independent variables

To measure neighbourhood disadvantage we constructed two scales: one delineated as a four-digit postcode area (1500 households; Cronbach's $\alpha = .88$) and one as a six-digit postcode area (17 households; Cronbach's $\alpha = .72$). The three measures used to create the four-digit postcode scale are obtained through The Netherlands Institute for Social Research. First, status scores of neighbourhoods are a ranking order of Dutch postcode areas based on income, job availability, and educational level, and are measured for the years 1998, 2002, 2006, and 2010. Higher status scores means a better neighbourhood, therefore this variable was reverse coded. Second, the Residential Environment Database (Woonmilieudatabase) provides the proportion of residents receiving housing benefits, and third, the proportion of students with a learning disability, both measured for the year 1997. The four measures used to create the six-digit postcode scale are obtained through Statistics Netherlands. First, we use a measure for the address density of the surrounding area, as a measure for urbanisation, and second the proportion non-Western immigrants in the neighbourhood, both measured for 2010. Third, we use a measure for the average property value (reverse coded), and fourth, an average fiscal income measure (reverse coded), both measured for 2004. All seven neighbourhood characteristics were standardised and constructed into the two scales that capture the degree of neighbourhood disadvantage. Of all respondents, 28% moved at

least once, therefore, neighbourhood disadvantage is time-varying and changes when respondents move. So, for every unit of analysis (months), respondents are analysed within the right neighbourhood. In must be noted that the correlation between moving and neighbourhood disadvantage is very low, so it is unlikely that the results will be influenced by residents from certain neighbourhood moving more often than residents from other neighbourhoods.

To construct personality types, we first needed to assess personality dimensions, which were measured with a shortened Dutch version of the Big Five questionnaire [Gerris et al., 1998; Goldberg, 1992]. This questionnaire contains 30 items, such as talkative (extraversion), sympathetic (agreeableness), systematic (conscientiousness), worried (emotional stability, reverse coded) and creative (openness to experience). The adolescents could respond ranging from 1 (completely true) to 7 (completely untrue). For the early-to-middle adolescent cohort we assessed personality at age 14 and for the middle-to-late adolescent cohort at age 16 (their earliest measurement point).[3] Cronbach's α's for the Big five scales ranged from .75 to .86. To assess the personality types (resilients, overcontrollers, undercontrollers), we used Latent Class Analysis [LCA], which detects latent classes of the most typical configurations of the five personality dimensions within persons. The distribution of personality dimensions across different personality types we found corresponds to earlier research [Klimstra et al., 2010; Robins et al., 1996]. Resilients (n = 364) score high on all five personality dimensions, and highest on extraversion, conscientiousness, emotional stability, and openness to experience. Overcontrollers (n = 515) score highest on agreeableness, but lowest on extraversion and emotional stability. Undercontrollers (n = 37) score lowest on agreeableness and conscientiousness. The three personality types were recoded into dummies.

Previous studies have often measured educational commitment as a mix of identification with commitment and making commitments [e.g., Germeijs & Verschueren, 2007; Robbins et al., 2004]. In line with Klimstra et al. (2012) we considered identification with commitment as a separate dimension of commitment. Educational commitments were assessed using the Utrecht-Management of Identity Commitments Scale [U-MICS; Crocetti et al., 2008], which consists of five items to measure the degree to which adolescents derive self-confidence

3. We wanted to measure personality at an early age, since a basic qualification (our dependent variable) is usually obtained between the ages 17 and 19. Age 16 is too close to the age of obtaining the basic qualification. In additional analyses were we measured personality types at age 16 for both cohorts we did not found a significant interaction term. Also, a separate analysis for the older cohort with personality at age 16 did not show a significant interaction term. The analysis restricted to the younger cohort measured at age 14 did show a significant result. We also measured personality types at ages 13 and 15 for the younger cohort, with which we find the same results as with age 14, when analysing the total sample. We maintain the older cohort to increase the sample size, but it should be noted that the results for personality are mainly driven by the younger cohort, indicating that it is the personality during the early adolescent life that counts when assessing the buffering effect of personality on neighbourhood disadvantage.

from the education choices they made, with response categories 1 (completely untrue) to 5 (completely true). Sample items are: "My education makes me feel confident about myself" and "My education gives me certainty in life". We constructed scales for educational commitment for all six waves, which all had high reliability (Cronbach's αs .90-.93). Finally, we made one time-varying variable for educational commitment, with changing values at the timing of new waves.

Control variables

We control for gender, age, delinquency, parental ethnicity, parental education, family structure, residential mobility, and educational level at the age of 13. Gender is a dummy with 'female' coded as 1. Age is measured in months and is time-varying. Age was standardised. Delinquency is time-varying, and is measured with 16 items about how often the respondent was involved in certain types of delinquent behaviour in the past twelve months. The answering categories were: 1 (never), 2 (once), 3 (two-three times), 4 (four times or more). Examples of items are: stole a bicycle, used marihuana or hash, carried a weapon, and arrested by the police. We constructed scales for all six waves, with Cronbach's αs .82-.90.

Parental ethnicity is a dummy and is 1 when both parents are non-Dutch born. Parental education is measured in a set of seven dummy variables, including: 1) lower vocational education or lower; 2) preparatory middle-level vocational education; 3) middle-level vocational education; 4) higher general continued education or preparatory scientific education; 5) higher vocational education; and 6) scientific education. Family structure is a time-varying dummy measuring not living with both parents. This includes: living with one parent; living with a parent and a stepparent; living alone; or a different situation. Residential mobility is a time-varying dummy measuring whether the respondent moved residence at least once. Educational level at the age of 13 is captured in three dummies: 1) preparatory middle-level vocational education (*vmbo*); 2) higher general continued education (*havo*); and 3) preparatory scientific education (*vwo*). Educational level at the age of 13 is important, because different high-school trajectories require different time investments (four, five, and six years respectively). And because our dependent variable is the timing of obtaining a basic qualification, not including this control variable would obscure the results.

Method

To test our hypotheses, we use Cox proportional hazards models [Allison, 1995]. We transformed our data into person-month data, where the first month is the month that the respondent turns 12 years old and the last month is the month of obtaining a basic qualification or, when no basic qualification is obtained, the month of the sixth wave data collection. This data structure allows for variables to vary over time, which in our case means at the timing of the six waves, and at the timing of events reported in the LHC (for example,

the year and month in which the basic qualification was obtained is reported in the LHC). Cox regression estimates the hazards that an event will occur (i.e., obtaining a basic qualification) for a set of covariates. We obtain coefficients (log hazard rates) that can be interpreted directly, positive signs indicating higher rates of attainment.

The respondents were recruited from twelve high schools, so it is possible that there are within-school correlations in educational outcomes. To account for this, we estimated an additional shared-frailty model which includes a frailty which is shared amongst the students of the same school [Gutierrez, 2002]. However, the likelihood-ratio test comparing the model with within-school correlation with the model without it proved to be insignificant ($x^2(l) = .90$; $p = .171$), so we dropped the frailty to keep the model more parsimonious.

RESULTS

To test whether there are differences in individual educational attainment between neighbourhoods with different degrees of disadvantage, we perform a simple log-rank test of equality for survivor functions. We divided neighbourhoods in two groups according to their degree of disadvantage (less than or equal to the mean level of disadvantage, and more than the mean level of disadvantage). This test supports the idea that adolescents in disadvantaged neighbourhoods have less educational success (i.e., less often obtain a basic qualification) ($x^2 = 23.20$; $p = .00$). Also, when comparing survivor rates for the two groups of neighbourhoods, we find that at the age of 20, 14% of the adolescents in less disadvantaged neighbourhoods has yet to obtain a basic qualification, while for the adolescents in more disadvantaged neighbourhoods this is 25%.

We consider educational commitment as a moderator variable in the relationship between the neighbourhood and educational attainment, however, it might be that educational commitment is influenced by neighbourhood disadvantage through collective socialisation processes and role models. If this is true, it means that educational commitment might be a mediating variable between neighbourhood disadvantage and educational outcomes, which might bias our results. We tested this with a correlation, checking whether there is an overlap between the level of educational commitment and the degree of neighbourhood disadvantage. At $t = 1$ (respondents' age 12) we find a small but significant correlation ($r = .067$, $p = .045$). However, most correlations after $t = 8$ (age 12 years and 7 months) are insignificant. We do not expect problems for our analyses, especially since the correlation disappears after a short time, but it must be noted that a small selection bias is possible.

To test which neighbourhood delineation is most suitable for our analyses, we run two Cox models, one for the four and one for the six-digit postcode area delineation [Table 1]. We see that disadvantage

measured on a larger scale (pc4) renders no effect on the individual timing of obtaining a qualification[4], while the smaller delineation (pc6) shows a significant effect. This is in line with previous research on neighbourhood delineations, who found that smaller delineations provide with better results, and besides that, are theoretically more likely to represent the individually perceived neighbourhood [Oberwittler & Wikström, 2009]. For the purpose of our analyses, we continue the analyses with the six-digit postcode area delineation.

Looking at the Cox model without interaction terms [see Table 2: M1], we first see a negative effect of neighbourhood disadvantage on the timing of obtaining a basic qualification, meaning that in each month (i.e., the analysis time), adolescents in disadvantaged neighbourhoods are less likely to obtain a basic qualification compared to adolescents living in more advantaged neighbourhoods. This finding is supportive of our first hypothesis. Furthermore, we see that adolescents with different personality types do not score differently on obtaining a basic qualification. We also see that adolescents with stronger educational commitments are more likely to obtain a basic qualification.

The main focus of this paper is to test whether adolescents with different individual traits are influenced differently by the neighbourhood. To test this we interact neighbourhood disadvantage with personality types and educational commitment. First, the interaction effect between neighbourhood disadvantage and resilients is positive [Table 2: M2]. This means that resilients experience less negative influence from neighbourhood disadvantage. Moreover, the interaction coefficient and the coefficient for neighbourhood disadvantage are almost equal of size, suggesting that resilients experience no neighbourhood effect, while overcontrollers and undercontrollers do. This last point is supported by two additional analyses restricting the sample to only resilients or only overcontrollers and undercontrollers. For the first we find no significant neighbourhood effect, while for the latter we do.

Second, the interaction effect between neighbourhood disadvantage and educational commitments is also positive [Table 2: M3], suggesting that adolescents with stronger educational commitments experience less negative influence of the neighbourhood. Compared to the model without interactions, the size of the coefficient for neighbourhood disadvantage increases (b = -.53). The size of the interaction effect is .12, and since educational commitment is measured on a scale from 0-4, adolescent with the highest educational commitment level are unlikely to experience any neighbourhood effect on the timing of obtaining a basic qualification (i.e., b = -.53+(4×.12) = -.05).

4. We also conducted analyses with the pc4 measure of neighbourhood disadvantage including the interaction terms with resilients and educational commitment. These were also not significant.

TABLE 1
Cox regression models on the timing of obtaining a basic qualification for different neighbourhood delineations (N = 916).

	Four-digit postcode area	Six-digit postcode area
	coef. (s.e.)	**coef. (s.e.)**
Neighbourhood disadvantage (pc4)	-0.05 (0.04)	
Neighbourhood disadvantage (pc6)		-0.16 (0.05)**
Log likelihood	-4842.88	-4839.47

** **p < 0.01** * **p < 0.05.**

Note: The models include the following variables: personality types, educational commitment, delinquency, gender, age, parental ethnicity, family structure, parental education, educational level at age 13, and residential mobility.

TABLE 2
Cox regression models on the timing of obtaining a basic qualification (*N*=916).

	M1	M2	M3
	coef. (s.e.)	**coef. (s.e.)**	**coef. (s.e.)**
Neighbourhood disadvantage (pc6)	-0.17 (0.05)**	-0.32 (0.07)**	-0.53 (0.16)**
Personality types (ref.: overcontrollers)			
Undercontrollers	0.05 (0.20)	0.10 (0.20)	0.08 (0.20)
Resilients	0.05 (0.07)	0.08 (0.07)	0.06 (0.07)
Educational commitment	0.21 (0.04)**	0.21 (0.04)**	0.21 (0.04)**
Neighbourhood disadv.*resilients		0.29 (0.10)**	
Neighbourhood disadv.*educ. commitment			0.12 (0.05)*
Delinquency	-0.50 (0.15)**	-0.50 (0.15)**	-0.52 (0.15)**
Gender (female)	0.04 (0.08)	0.05 (0.08)	0.02 (0.08)
Age	-0.08 (0.06)	-0.09 (0.06)	-0.07 (0.06)
Parental ethnicity (non-Dutch)	-0.07 (0.13)	-0.05 (0.13)	-0.09 (0.13)
Family structure (ref.: with both parents)			
Not with both parents	0.10 (0.08)	0.13 (0.08)	0.10 (0.08)
Parental education (ref.: scientific education)			
Lower vocational education or lower	-0.13 (0.11)	-0.13 (0.11)	-0.12 (0.11)
Preparatory middle-level voc. educ.	-0.20 (0.10)*	-0.21 (0.10)*	-0.20 (0.10)
Middle-level vocational education	-0.10 (0.10)	-0.10 (0.10)	-0.10 (0.10)
Higher general continued education or preparatory scientific education	0.11 (0.09)	0.10 (0.09)	0.12 (0.09)
Higher vocational education	-0.07 (0.09)	-0.08 (0.09)	-0.06 (0.09)
Educational level at 13 (ref.: vwo)			
Vmbo	-0.97 (0.11)**	-0.96 (0.11)**	-0.98 (0.11)**
Havo	-0.26 (0.08)**	-0.27 (0.08)**	-0.27 (0.08)**
Residential mobility	-0.21 (0.09)*	-0.22 (0.09)*	-0.21 (0.09)*
Log likelihood	-4833.34	-4829.25	-4830.75
LR X^2 (df)[a]		8.17 (1)**	5.18 (1)*

** **p < 0.01** * **p < 0.05** [a]**Likelihood-ratio tests compare models 2 and 3 with model 1**

CONCLUSION AND DISCUSSION

One important main effect we found is that stronger educational commitments lead to an earlier timing of obtaining an educational qualification (H3). Because we simultaneously tested educational commitments and personality we were able to see whether there is an effect of educational commitment when both are in the model, as was refuted by earlier research [Klimstra et al., 2012]. Contrarily, we do find an effect of educational commitment. We can explain this divergence by pointing out that, instead of personality traits, we used personality types. The personality trait of conscientiousness shares some overlap with educational commitments, so when taken apart, it might be difficult to assess the effect of educational commitment. Because we looked at configurations of the Big Five personality traits within persons, the effect of commitment remains, suggesting that personality types and educational commitment not necessarily overlap.

The principal aim of this paper was to investigate whether adolescents with different individual traits experience different neighbourhood effects. The main neighbourhood effect we found is that: adolescents residing in disadvantaged neighbourhoods are less likely to obtain a basic qualification than adolescents residing in more advantaged neighbourhoods (H1). Although this finding is not novel, allows us to test our hypotheses about diverging neighbourhood effects for adolescents with different individual traits. We looked at two individual traits: personality types and educational commitment.

First, we hypothesised that adolescents with different personalities types cope differently with neighbourhood adversity, and therefore experience different neighbourhood effects on their educational outcomes. More specifically, we hypothesised that resilients experience a weaker effect of neighbourhood disadvantage than overcontrollers and undercontrollers (H2). Our analyses support this hypothesis, and interestingly enough, it seems that resilients might experience no influence of neighbourhood disadvantage on educational attainment. Overcontrollers and undercontrollers, however, do experience a negative influence of neighbourhood disadvantage on obtaining a basic qualification.

Second, we looked at how adolescents with different degrees of educational commitment differ in how they experience the influence of the neighbourhood on their educational outcomes. We hypothesised educational commitment to buffer the negative effect of neighbourhood disadvantage (H4). Also this hypothesis is supported by our data. We find that adolescents with low levels of educational commitment who live in disadvantaged neighbourhoods experience a stronger negative influence of neighbourhood disadvantage compared to other adolescents in the neighbourhood, who have high levels of educational commitment. Furthermore, our analyses suggest that adolescents with the highest level of educational commitment are not or hardly affected by neighbourhood conditions.

These findings provide implications for policy makers who target

neighbourhood disadvantage with the goal to promote social mobility amongst the neighbourhood's residents. Disadvantaged neighbourhoods might indeed hinder the social mobility of its residents, however, focussing on the neighbourhood as a whole [e.g., social-mix policies, Galster, 2007; Kleinhans, 2004] might turn out to be inefficient, and ignores the individual differences between people. When residents' personalities and educational commitments are known, person-specific policies can more specifically target the residents who are most likely to be susceptible to be negatively influenced by neighbourhood disadvantage. Less investment might be needed for residents with resilient personalities or strong educational commitments.

We also tested the influence of the scale of the neighbourhood. We delineated neighbourhood disadvantage on a larger and a smaller scale, and only found an effect for the small delineation. Considering the theories on collective socialisation and role models in the neighbourhood, our findings suggest that residents are only able to exert social influence on small geographical scales. Large scale delineations of the neighbourhood seem inappropriate when looking at educational outcomes. It would be interesting for future research to look deeper at issues of scale. But more importantly, this finding emphasises the notion [Galster, 2001] that neighbourhood researchers should be concerned about how their neighbourhood delineation relates to the questions they want to answer.

Neighbourhood research is often faced with selection bias [Galster, 2008], i.e., that families sort into neighbourhoods according to their preferences and economic constraints. When individual characteristics that determine both neighbourhood choice and educational attainment are omitted from the analyses, effects may spuriously be ascribed to the neighbourhood, while actually they pertain to unmeasured individual characteristics. However, because our sample consists of adolescents, the neighbourhood choice is exogenous, since it is made by their parents. Therefore, it is unlikely that unmeasured characteristics of the adolescents determine both neighbourhood choice and educational attainment. However, there may be an indirect selection issue through parental characteristics. Parental characteristics may influence both neighbourhood choice and characteristics of the adolescent. We partly dealt with this by controlling for parental education.

In conclusion, we can say that it is very likely that adolescents with different individual traits experience different neighbourhood effects on educational attainment. To our knowledge, neighbourhood effects research and research on personality and educational commitments has not been combined thus far. However, as our results show, personality and educational commitments are strongly related to the magnitude of the neighbourhood effect. Our findings lead to new questions: Do personality and educational commitments operate in the same way for neighbourhood effects on other individual outcomes, for example, income or deviant behaviour? And, are there other individual traits that lead to diverging neighbourhood effects,

for example confidence or ambition? In any case, our findings require future neighbourhood research to consider individual differences with more caution.

ACKNOWLEDGEMENTS

We would like to thank Jeroen Weesie, Maarten van Ham and Rongqin Yu for their help and useful suggestions.

CHAPTER 5

Neighbourhood effects on migrant and native youth's educational commitments

an enquiry into personality differences

Submitted for publication.
A different version of this chapter is available as: Nieuwenhuis, J., Hooimeijer, P., van Ham, M. & Meeus, W. (2013). Neighbourhood effects on migrant youth's educational commitments, an enquiry into personality differences. *IZA Discussion Paper*, 7510 [www.iza.org].

ABSTRACT

In the neighbourhood effects literature, the socialisation mechanism is usually investigated by looking at the association between neighbourhood characteristics and educational attainment. The step in between, that adolescents actually internalise educational norms held by residents, is often assumed. We attempt to fill this gap by looking at how the internalisation of educational norms (commitments) is influenced by neighbourhoods' immigrant concentration. We investigate this process for both migrant and native youth, as both groups might be influenced differently by immigrant concentrations. To test our hypothesis we used longitudinal panel data with five waves (N = 4,281), combined with fixed-effects models which control for a large portion of potential selection bias. These models have an advantage over naïve OLS models in that they predict the effect of change in neighbourhood characteristics on change in educational commitment, and therefore offer a more dynamic approach to modelling neighbourhood effects. Our results show that living in neighbourhoods with higher proportions of immigrants increases the educational commitments of migrant youth compared to living in neighbourhoods with lower proportions. Besides, we find that adolescents with a resilient personality experience less influence of the neighbourhood context on educational commitments than do adolescents with non-resilient personalities.

INTRODUCTION

Research has shown that educational commitments are related to better school performance [Germeijs & Verschueren, 2007; Klimstra et al., 2012; Robbins et al., 2004], and is positively associated with the ability to adjust to the educational demands of the university [Luyckx et al., 2006], scholastic competences, work ethic and achievement motivation [Meeus et al., 2002]. Studying contextual predictors of educational commitments might give insight in why some youth do better in education than others.

The concept of educational commitment refers to 'identification with educational commitments', which is distinctive from 'making educational commitments'. Making educational commitments refers to the degree to which adolescents have made choices in the educational domain, and are committed to these choices. However, making a commitment is not the same as identifying with and feeling certain about that commitment. This is captured in the concept identification with educational commitments, which refers to the degree that adolescents identify themselves with, feel certain about, and internalise the educational commitments they made [Luyckx et al., 2006; for a review, see Meeus, 2011]. The strength of an adolescent's educational commitments indicates the goals and values that an adolescent has set for his/her life. This definition of educational commitments makes it an ideal candidate to test how neighbourhood characteristics

influence the internalisation of certain educational values. By comparing migrant youth with native adolescents, we attempt to find out whether there are differences in how the neighbourhood context influences the educational commitments of both groups.

An explanation for differences in educational commitments could be related to contextual factors in the residential environment [so-called neighbourhood effects; for an overview of the neighbourhood effects literature see: Ellen & Turner, 1997; Galster, 2002; Dietz, 2002; Durlauf, 2004; van Ham et al., 2012; 2013]. There is substantial debate with little apparent agreement on the causal mechanisms which produce neighbourhood effects, and their relative importance in shaping individuals' life chances compared to other influences [van Ham et al., 2012]. One mechanism states that the neighbourhood context might influence educational outcomes through processes of socialisation, where neighbourhood residents hold certain norms and transmit these norms to other residents. A high presence of positive attitudes towards education in neighbourhoods can be expected to reflect positively on adolescents. Adolescents are more inclined to adopt positive attitudes when they have positive role models showing the merits of education [Ainsworth, 2002; Wilson, 1996], and when there is more adult interference and social control in cases such as truancy [Akers et al., 1979; Galster, 2012; Sampson & Raudenbush, 1999]. The neighbourhood effects thesis suggests that because of the presence of certain norms in the neighbourhood, adolescents will internalise these norms (educational commitments), which consequently has an effect on their educational achievement. Most studies have only looked at the relationship between the neighbourhood context and educational outcomes, including final grades, graduation, and highest achieved education [for reviews, see: Leventhal & Brooks-Gunn, 2000; Nieuwenhuis & Hooimeijer, 2013]. In this paper, however, we will focus on the first link, i.e., the relationship between the neighbourhood context and whether adolescents internalise certain educational norms. More specifically, we will look at how the neighbourhoods' immigrant concentrations affect the educational commitments of migrant and native adolescents.

When looking at neighbourhood effects, we should to keep in mind that different individuals within neighbourhoods might be affected differently. This relates to one of the main problems in the neighbourhood effects literature, that the outcomes of empirical studies into neighbourhood effects are biased by unmeasured characteristics of individuals: unobserved heterogeneity in research samples obscures 'true' neighbourhood effects. In this paper we argue that personality might be such a commonly unobserved individual trait that can affect the measured outcomes of neighbourhood effect studies. In a previous study on educational achievement we found that adolescents with a resilient personality are better able to cope with neighbourhood adversity, and therefore less likely to be affected by neighbourhood characteristics than adolescents with a less resilient personality [Nieuwenhuis et al., 2013b]. In the current study we will

investigate to what extent adolescents with different personalities experience a different effect of the neighbourhood on their educational commitments. We hypothesise that adolescents with a resilient personality are better able to cope with neighbourhood stressors, and will therefore experience less influence of neighbourhood characteristics on their educational commitment than adolescents with non-resilient personalities.

We want to note that selection bias is a problem for most neighbourhood research. Neighbourhoods are not random selections of households, but families sort into neighbourhoods according to their preferences and economic constraints. When studies do not properly control for this problem, found neighbourhood effects could be overestimated or underestimated. Therefore, to test our hypothesis we used longitudinal panel data consisting of five waves [N = 4,281], which enables us to use fixed-effects models, which take care of time-invariant unobserved variables that have the potential to cause selection bias [Allison, 2009].

THEORY

Based on a literature study we will first develop a hypothesis for the effect of the degree of immigrant concentration in neighbourhoods on youth's educational commitments. Next, we will elaborate on how having a resilient personality may alter the relationship between neighbourhoods' immigrant concentrations and educational commitment.

Immigrant concentration

A high proportion of non-Western immigrants in a neighbourhood is often considered as undesirable by local and national governments because it can hinder the integration of immigrants in the host society. It can be argued that, for residents with an immigration background, contacts with natives are more beneficial than contacts with co-ethnics, since natives have in general better knowledge about, for example, jobs and the educational system, and therefore can provide access to the host society [Burt, 2000; Putnam, 2000]. People's social networks are often influenced by the composition of their environment [Mollenhorst et al., 2008]. It was found that, in the Netherlands, immigrants living in neighbourhoods with a higher proportion of immigrants have a lower likelihood to include Dutch people in their social network [Martinovic et al., 2009]. A high proportion of immigrants in the neighbourhood is to some extent a proxy for neighbourhood disadvantage, since immigrants are lower educated, have more unemployment, earn less, and are less satisfied with their living environment compared to native Dutch residents [Gijsberts et al., 2012]. This suggests that immigrants living in ethnically concentrated neighbourhoods are more likely to lack the social capital which would enable them to succeed in the educational system. Such neighbourhoods

will provide adolescents with less knowledge about the educational system and with less positive role-models, showing them the benefits of education for upward social mobility [Ainsworth, 2002]. This may lead to negative attitudes towards education, because the importance of education for upward social mobility is not recognised [MacLeod, 1987].

Looking at it from another perspective, higher concentrations of immigrants might also be beneficial for migrant youth, when shared positive attitudes towards education are combined with a strong co-ethnic social network. First generation immigrants are a group that abandoned their home country to build a life in a new country. For this group, migration is likely to be a strong incentive to perform well in the host country and make use of the available opportunities [Pásztor, 2010]. However, many first generation immigrants experience difficulties in overcoming their disadvantaged situation. When immigrants experience difficulties in their own lives to get ahead, they may focus on stimulating the educational success of their children, that way trying to achieve intergenerational social mobility [Zhou & Bankston, 1998]. In neighbourhoods with higher shares of immigrants, the likelihood to meet co-ethnics increases. This can give rise to ethnic social networks and institutions, which may help solve education-specific problems and share information; reinforce common norms about education; and offer help in monitoring each other's children [Portes & MacLeod, 1999; Zhou, 2009]. Combining the arguments above would mean that in neighbourhoods with higher proportions of immigrants, the likelihood is higher for the presence of strong ethnic social networks which share the norm that stimulating their children to succeed in the host country's educational system is important. And, because of more social closure, adult residents are better able to enforce these norms, leading to a higher likelihood for migrant youth to internalise these norms.

Because two opposing ideas exist about how the neighbourhood's immigrant concentration affects its migrant youth's educational commitments, we will examine which mechanism is supported by our results.

For native youth we do not expect to find the same result when studying the effect of the neighbourhood's immigrant concentration on their educational commitments. High immigrant concentrations are almost non-existent in the Netherlands. More than 25% immigrants occurs in 5% of the neighbourhoods, and more than 50% in just 1% of the neighbourhoods [Dagevos, 2009]. Our argumentation for migrant youth depends on them being a minority group in their neighbourhood, and being affected by other migrants due to role-models, social capital, and ethnic social networks. Native youth, however, will almost always be the majority group in their neighbourhood; changes between low proportions of immigrants is unlikely to affect their role-models, social capital, and social networks.

Resilient personalities

In the introduction we argued that personality might be a commonly unobserved personal trait that can affect the relationship between neighbourhood characteristics and educational commitment. Previous studies already suggested that there is a relation between neighbourhood effects and personality traits. For example, studies have found different effects of impulsivity on delinquency between neighbourhoods scoring high and low on indicators for disadvantage [Lynam et al., 2000; Meier et al., 2008; Zimmerman, 2010]. Furthermore, neighbourhood characteristics have found to moderate the effects of low self-control on violent victimisation [Gibson, 2012], of hyperactivity, impulsivity, and attention difficulties on conduct problems [Zalot et al., 2009], and of thrill and adventure seeking and lack of premeditation on offending [Jones & Lynam, 2009]. In studies on the relation between the neighbourhood and educational outcomes, personality has however not been introduced yet. Besides, studies thus far have relied on personality traits, while we employ a person-centred approach, using personality types. This approach takes into account the within-person configuration of personality traits, which describes the person as a whole, rather than focussing on specific dimensions of personality [Asendorpf, 2002; Magnusson, 1998]. Using personality types takes into account that the meaning of personality dimensions depends on the scores on other dimensions, therewith enabling the study of individuals rather than mere traits [Scholte et al., 2005].

Personality research offers a useful distinction of three personality types that score differently on ego-control and ego-resiliency: resilients, undercontrollers, and overcontrollers [Block & Block, 1980]. Ego-control is defined as the tendency to contain versus express emotional and motivational impulses, and ego-resiliency as the tendency to respond flexibly versus rigidly to environmental demands [Klimstra et al. 2010; Meeus et al. 2011]. Resilients are characterised by medium levels of ego-control and high level of ego-resiliency. Undercontrollers score low and overcontrollers high on ego-control, however, both score low on ego-resiliency [Asendorpf et al. 2001; Caspi 1998]. Resilients are the best adjusted group and are likely to most effectively cope with neighbourhood influences, because they can respond flexibly and adaptively to environmental demands.

Above, we argued that a higher concentration of immigrants in the neighbourhood might have either a negative or a positive impact on the development of migrant youth's educational commitments. When living in a certain neighbourhood exerts an influence on someone's educational commitments, such neighbourhoods can be described as demanding environments. Because adolescents with a resilient personality are better able to respond flexibly to environmental demands, we hypothesise that the influence of neighbourhoods' immigrant concentrations of educational commitments is weaker for resilients than for adolescents with non-resilient personality types.

DATA AND METHODS

Data

Our individual-level data are drawn from the Conflict and Management of Relationships (Conamore) dataset. The Conamore is a panel dataset consisting of 1,313 respondents recruited from twelve high schools in the province of Utrecht, the Netherlands. The dataset consists of two cohorts: early-to-middle adolescents (n = 923; 70.3%) who were on average 12.4 years of age at the first wave, and middle-to-late adolescents (n = 390; 29.7%) with an average age of 16.7 years at the first wave. The first wave was collected in 2001/'02, and waves 1 through 5 were collected with a one year interval, with the data collection of wave 5 in 2005/'06. The sixth wave from 2009/'10 included an additional Life History Calendar (LHC) with retrospective questions from the age of 12 until the timing of the sixth wave. In waves 1, 2, 3, 4, 5 and 6 the number of respondents was 1,313, 1,313, 1,293, 1,292, 1,275, and 1,026, respectively. For the first five waves, sample attrition was very low (1.2% across waves). Attrition for the sixth wave is bigger (20%), because of the larger time gap between wave five and six, compared to the one-year gap between the earlier waves. For our analyses we use wave 1 through 5 and the LHC. After listwise deletion of cases with missing values, our sample consists of 907 respondents, of which 813 are natives and 94 are migrant youth. Migrant youth are defined as respondents who have two foreign born parents, and the group consists mainly of Moroccans, Turks, Surinamese, and people from the Dutch Antilles [i.e., non-Western migrants]. We restricted the analyses to respondents who have at least two observations in different waves. The final N is 4,281 (total observations across waves for the 907 respondents), of which 3,852 for natives and 429 for migrant youth.

Because the Conamore data is geo-coded, and includes all six-digit postcodes (areas containing, on average, 17 households) where respondents lived from the age of twelve onwards, we are able to enrich the data with neighbourhood characteristics on the postcode-level as provided by Statistics Netherlands [CBS, 2011]. Because Dutch high schools recruit students from a large area, the respondents are not clustered in postcode areas. The mean number of respondents per postcode area across waves is 1.13, with a maximum of 3 respondents in one postcode area for 1.2% of the sample. As a result of this lack of clustering, it is not necessary, or even possible, to use multi-level models with a neighbourhood level.

Measurements

The dependent variable is identification with educational commitments, which is measured using the Utrecht-Management of Identity Commitments Scale [U-MICS; Crocetti et al. 2008], which consists of five items to measure the degree to which adolescents derive self-confidence from the education choices they made, with response categories 1 (completely untrue) to 5 (completely true). The items

are (translated from Dutch): "My education makes me feel confident about myself"; "My education gives me certainty in life"; "Because of my education I feel certain about myself"; "My education gives certainty for the future"; and "Because of my education I can perceive the future optimistically". We constructed scales for educational commitment for the five waves, which all had high reliability (Cronbach's αs .90-.93). The variable is standardised. Descriptive results for this and other variables can be found in Table 1.

The neighbourhood-level independent variable representing the proportion of non-Western immigrants was measured for 2010. The neighbourhood scale used is the six-digit postcode scale, which pertains to, on average, 17 households. Six-digit postcode areas are a good scale to measure socialization hypotheses, because socialization is more likely to happen through neighbours in close proximity than through neighbours living a few blocks away. When respondents change postcode between waves (which happened at least once for 28% of the sample), this is reflected in different values for the neighbourhood variable in different waves. The proportion of non-Western immigrants is represented by three dummies: <.10, .10-.20, and >.20[5], to allow for the comparison of different degrees of neighbourhood mixing.

From the Big Five personality dimensions we constructed three personality types: resilients, overcontrollers, and undercontrollers. The Big Five were measured with a shortened Dutch version of the Big Five questionnaire [Gerris et al., 1998; Goldberg, 1992], containing 30 items, such as: talkative (extraversion), sympathetic (agreeableness), systematic (conscientiousness), worried (emotional stability, reverse coded) and creative (openness to experience). The response categories were 1 (completely true) to 7 (completely untrue). We assessed personality at the first wave in order to have a fixed value for our interaction effects. Cronbach's αs for the Big five scales ranged from .77 to .87. We used Latent Class Analysis [LCA] to detect latent classes of the most typical configurations of the five personality dimension within persons. The distribution of personality dimensions across different personality types we found corresponds to earlier research [Klimstra et al., 2010; Robins et al., 1996]. Resilients score high on all five personality dimensions, and highest on extraversion, conscientiousness, emotional stability, and openness to experience. Overcontrollers score highest on agreeableness, but lowest on extraversion and emotional stability. Undercontrollers score lowest on agreeableness and conscientiousness. Our interest lies in resilients' high levels of ego-resiliency versus the low levels of overcontrollers and undercontrollers, so we collapsed overcontrollers and undercontrollers in one category, and created a dummy measuring a resilient

5. We chose these categories, because in the province of Utrecht, and thus in our data, there are not many neighbourhoods with high proportions of non-Western immigrants. Additional categories above 20% of non-Western migrants would result in categories with too few respondents.

personality (1; n = 385) or a non-resilient personality (0; n = 510).

We control for the time-invariant variables gender and parental education. Furthermore, we control for the time-varying variables: age, delinquency, educational level, family structure, conflict frequency with parents, parental support, and parental power. Gender is coded as male (0) and female (1). Parental education is measured in a set of six dummy variables, including: 1) lower vocational education or lower; 2) preparatory middle-level vocational education; 3) middle-level vocational education; 4) higher general continued education or preparatory scientific education; 5) higher vocational education; and 6) scientific education.

The first time-varying variable, age is measured in years and controls for the use of different cohorts. Next, we control for delinquency, because delinquency was found to positively correlate with negative school attitudes [Kulka et al., 1982]. Delinquency is measured with 16 items about how often the respondent was involved in certain types of delinquent behaviour in the past twelve months, with the following answering categories: 1 (never), 2 (once), 3 (two-three times), 4 (four times or more). Example items are: stole a bicycle, used marihuana or hash, carried a weapon, and arrested by the police. We constructed scales for all five waves, with Cronbach's αs .82-.90. Furthermore, educational level at every wave is measured with eight dummies:

1. preparatory middle-level vocational education;
2. higher general continued education;
3. preparatory scientific education;
4. middle-level vocational education;
5. higher vocational education;
6. scientific education;
7. different;
8. not in education.

We include several control variables relating to the family, because the parental home is an important context for adolescent development. Parents can support the development of their children's educational attitudes by being available, by being involved in school and showing interest in school-related activities [Astone & McLanahan, 1991; Clark, 1983; Coleman, 1988; McNeal, 1999]. Also they can exert stricter control over the adolescents activities, therewith trying to restrict the negative influence of deviant peers on the development of educational attitudes [Furstenberg et al., 1999; Jarrett, 1997]. Parents who have higher frequencies of conflict with their child may be less successful in transmitting their educational aspirations onto their child. Furthermore, adolescents from families with a non-traditional family structure may experience different levels of conflict, control, and support.

Family structure is a dummy measuring whether the respondent was not living with both parents (1), for every wave. This includes:

living with one parent; living with a parent and a stepparent; living alone; or a different situation.

Conflict frequency with parents is measured using a Dutch version of the Interpersonal Conflict Questionnaire, which was reported to have adequate validity [Laursen, 1993]. The questionnaire consists of 35 items of potential topics of conflict with five answering categories: 1 (never) to 5 (often). The adolescents reported separately for their father and mother whether they had conflict about topics such as dates, privacy, behaviour in school, and homework. The Cronbach's αs range from .92 to .95 across waves. We combined the scales for fathers and mothers in one scale measuring conflict with parents.

Parental support and power are both measured using the Network of Relationship Inventory (NRI) [Furman & Buhrmester, 1985]. The NRI has reported adequate validity [Edens, Cavell & Hughes, 1999]. The questions are asked separately about the father and the mother and uses answering categories that range from 1 (little or not at all) to 5 (more is not possible). The support scale consists of 12 items from different subscales of the NRI, such as companionship, instrumental aid, intimacy, nurturance, affection, admiration, and reliable alliance. Examples of items are: "Do you share secrets or personal feelings with you father/mother?" and "Does your father/mother appreciate the things you do?" Across waves, the Cronbach's αs range from .87 to .92. We combined the scales for fathers and mothers in one scale in order to obtain an overall measure of parental support. The power scale consists of 6 items. Examples items are: "How often does your father/mother tell you what to do?" and "To what extent is your father/mother the boss in your relationship?" Low levels on this scale indicate that adolescents perceive the relationship with their father/mother as equally powerful, high scores indicate that adolescents perceive their father/mother as more powerful. The Cronbach's αs range from .81 to .90 across waves. Again, we combined to scales about fathers and mothers to obtain an overall measurement for parental power.

Method

Because we have a panel dataset with five observations over five years for all variables, we are able to employ a fixed-effects (FE) model[6]. The FE method estimates the effects of within-person change in the independent variables on the within-person change in the dependent variable. Any time-invariant characteristics (both observed and unobserved) are automatically controlled for, as the sum of their change will always be zero [Allison, 2009]. This removes potential selection bias emerging from time-invariant characteristics that influence both neighbourhood selection and educational commitments [Galster, 2008]. We ran a Hausman test to examine whether

6. We have not looked at lag-effects or first difference models, because the associated reduction in sample size for the model of migrant youth did not leave enough power for such analyses.

a fixed-effects model is favoured over a random effects model. The result is that the unique errors are likely correlated with the independent variables, making a fixed-effects model the preferred choice. In the tables we report robust standard errors.

To emphasise the importance of controlling for selection bias, we also employ OLS models and compare the results with the outcomes of the fixed-effects models. OLS models differ from FE models in the sense that OLS estimates between-person variation, while FE estimates within-person variation. This allows us to include time-invariant variables in OLS models, which are automatically controlled for in FE models. Because within-person observations over time are not independent, we cluster the observations on individuals (also in the FE models), thus obtaining more robust standard errors.

We will look at differences between native adolescents and migrant youth (both parents foreign born) by analysing them separately. Next, we will assess our hypothesis that adolescents with a resilient personality experience less influence of the neighbourhood by including an interaction effect between 'proportion of non-Western immigrants' and the variable measuring whether or not the respondent had a resilient personality at the time of wave 1.

TABLE 1
Descriptive statistics

	Sample: migrant youth (N = 429)				Sample: natives (N = 3,852)			
	Mean	**S.D.**	**Min.**	**Max.**	**Mean**	**S.D.**	**Min.**	**Max.**
Dependent variable								
Education commitment	.17	1.16	-3.75	1.66	-.02	.96	-3.75	1.66
Neighbourhood characteristics								
Proportion non-Western immigrants: <.10	.14	.34	.00	1.00	.76	.43	.00	1.00
.10-.20	.10	.30	.00	1.00	.14	.34	.00	1.00
>.20	.76	.42	.00	1.00	.10	.31	.00	1.00
Time-varying covariates								
Age in years	15.86	2.45	12.00	24.00	15.48	2.36	11.00	23.00
Delinquency	.15	.28	.00	1.63	.15	.31	.00	3.00
Family structure (1 = not with both parents)	.25	.43	.00	1.00	.20	.40	.00	1.00
Conflict frequency with parents	.70	.51	.00	2.41	.65	.49	.00	3.08
Parental support	2.54	.68	.00	4.00	2.50	.58	.04	4.00
Parental power	1.67	.74	.00	4.00	1.41	.61	.00	4.00
Time-invariant covariates								
Resilient personality	.29	.45	.00	1.00	.45	.50	.00	1.00
Gender (1 = female)	.58	.49	.00	1.00	.56	.50	.00	1.00
Parental education[a]:								
Lower vocational education or less	.32	.47	.00	1.00	.12	.33	.00	1.00
Preparatory middle-level voc. educ.	.27	.45	.00	1.00	.19	.39	.00	1.00
Middle-level vocational education	.22	.41	.00	1.00	.19	.39	.00	1.00
Higher general continued education or preparatory scientific education	.17	.38	.00	1.00	.22	.41	.00	1.00
Higher vocational education	.11	.32	.00	1.00	.21	.41	.00	1.00
Scientific education	.15	.36	.00	1.00	.34	.47	.00	1.00

[a] The sample size for parental education is 406 for the migrant youth sample and 3,849 for the native sample.

RESULTS

To test our hypotheses, we conduct analyses for migrant youth, as well as for native adolescents as a comparative sample [Table 2]. Comparing migrant youth [Model 1] and native adolescents [Model 3] we immediately find that natives are not influenced by the neighbourhood proportion of non-Western immigrants, while migrant youth clearly are. We can see that, compared to neighbourhoods with less than 10% non-western immigrants, neighbourhoods with more than 20% non-Western immigrants increase the educational commitments of migrant youth. However, neighbourhoods with 10-20% non-Western immigrants have the strongest positive effect on educational commitments. This finding supports the idea that ethnic social capital in neighbourhoods stimulates migrant youth to have stronger educational commitments. Comparing the magnitudes of .10-.20 and >.20 with a Wald test, we find that the difference is marginally significant ($F(3,93) = 3.35$; $p = .0702$). This indicates that neighbourhoods with a certain mix are preferable. Considering the small sample of migrant youth, this is an interesting finding.

To test whether adolescents with a resilient personality are influenced less by the neighbourhood than adolescents with non-resilient personalities, we include interactions in Models 2 and 4 between having a resilient personality and the proportion of non-Western immigrants. For migrant youth, we find that the positive effect of higher proportions of non-Western immigrants on educational commitments is still positive, but much weaker for resilients compared to adolescents with non-resilient personalities. For native adolescents we find no support for such an interaction effect. To find the neighbourhood effect for resilient migrant youth, we run Model 2 with resilients as the reference group. The effect of proportion of non-Western immigrants .10-.20 is ($b = .986$; s.e. = .342; $p = .005$) and for >.20 is ($b = .632$; s.e. = .125; $p = .000$). The effect magnitude for non-resilient personalities is reflected in the main effect of proportion of non-Western immigrants [Table 2: M2], which is clearly much stronger than the main effects for resilients. This supports our hypothesis that adolescents with a resilient personality experience weaker neighbourhood effects compared to adolescents with a non-resilient personality type.

As for the control variables, age seems to be of importance, albeit working in a different direction for native and migrant youth. Interestingly enough, this suggests that as migrant youth get older, they might start to realise that their returns from educational commitments are lower compared to native adolescents, since we find a negative relationship between age and educational commitment for migrant youth, while the relationship for natives is positive. The variables on the relationship with parents seem to have logical directions: more conflict leads to less educational commitments (for migrant youth); more parental support leads to more educational commitments; and more parental power leads to less educational

commitments (for native adolescents). Delinquency, albeit insignificant, has the expected sign in the migrant youth model.

Because some studies do find associations between the neighbourhood's ethnic concentration and educational outcomes, also for native youth samples [for reviews, see: Leventhal & Brooks-Gunn, 2000; Nieuwenhuis & Hooimeijer, 2013], we will examine if we can reproduce these results when not controlling for selection bias. For this purpose, we compare OLS models clustered on individuals, with FE models [Table 3]. For migrant youth, the OLS model [Table 3: M1] shows that living in neighbourhoods with more than 20% non-Western immigrants has a positive effect on the educational commitments, compared to living in neighbourhoods with less than 10% non-Western immigrants. Comparing with the FE model [Table 3: M2], we see that the magnitude of the effect of the variable proportion of non-Western immigrants increase, besides, also the category 10-20% non-Western becomes significant. It is a function of FE models to control for time-invariant unmeasured characteristics that may, in our case, influence both neighbourhood selection and educational commitments. Apparently, for migrant youth, neighbourhood effects become more pronounced when controlling for such characteristics, suggesting that the findings of the OLS models are caused by neglecting to measure certain characteristics.

When looking at the models for native adolescents [Table 3: M3 and M4], we see that the OLS model suggests a (albeit marginally significant) relationship between the proportion of immigrants and educational commitments, however, it vanishes when fitting a FE model. This finding supports the idea that the found neighbourhood effects in the OLS model might actually be family effects, which disappear when controlling for any time-invariant unobserved (family) characteristics. Unobserved characteristics other than those pertaining to the family might also be involved, however, it is not possible to distinguish these.

Both comparisons suggest selection bias. For migrant youth, OLS models seem to underestimate neighbourhood effects, while for native youth, OLS models seem to overestimate these effects. This is a strong argument to favour FE models over OLS models, and to some extent explains the difference between our findings and findings of other studies. It should be noted that the method only controls for time-invariant unobserved individual characteristics, and does not control for time-varying unobserved characteristics, so the presence of selection bias cannot be ruled out totally. However, that we are still able to find neighbourhood effects using this technique adds to the robustness of our findings.

TABLE 2
FE models on educational commitments: comparison of natives and migrant youth.

	M1: sample: migrant youth	M2: M1 + interaction	M3: sample: natives	M4:M3 + interaction
	coef. (s.e.)	**coef. (s.e.)**	**coef. (s.e.)**	**coef. (s.e.)**
Neighbourhood characteristics				
Prop. non-West. immigrants (ref.: <.10)				
.10-.20	1.459 (.425)**	2.137 (.347)**	-.144 (.108)	-.101 (.185)
>.20	1.031 (.359)**	1.630 (.171)**	-.137 (.101)	.018 (.148)
Prop. n.-W. im. .10.-20*resilient pers.		-1.151 (.475)*		-.096 (.224)
Prop. n.-W. im. >.20*resilient pers.		-.998 (.239)**		-.332 (.192)†
Individual characteristics				
Age in years	-.080 (.038)*	-.077 (.039)†	.051 (.011)**	.051 (.011)**
Delinquency	-.297 (.257)	-.303 (.257)	.018 (.097)	.018 (.097)
Family structure (not with both parents)	.031 (.239)	.031 (.243)	-.073 (.064)	-.071 (.064)
Conflict frequency with parents	-.294 (.156)†	-.293 (.156)†	-.062 (.050)	-.062 (.050)
Parental support	.281 (.111)*	.275 (.113)*	.321 (.045)**	.321 (.045)**
Parental power	-.070 (.103)	-.071 (.103)	-.142 (.044)**	-.144 (.044)**
Intercept	.142 (.731)	-.172 (.702)	-1.325 (.232)**	-1.330 (.232)**
R^2	.0991	.0495	.0408	.0404
F	5.41**		13.32**	10.86**
N	429	429	3,852	3,852

** **p < .01;** * **p < .05;** † **p < .10.**

TABLE 3
OLS vs. FE models on educational commitments: comparison of neighbourhood characteristics

	Sample: migrant youth (N = 406)		Sample: natives (N = 3849)	
	M1: OLS	M2: FE	M3: OLS	M4: FE
	coef. (s.e.)	coef. (s.e.)	coef. (s.e.)	coef. (s.e.)
Prop. non-Western immigrants (ref.: <.10)				
.10-.20	.353 (.313)	1.481 (.398)**	.016 (.065)	-.144 (.108)
>.20	.756 (.248)**	1.016 (.324)**	.136 (.080)†	-.137 (.101)
R^2	.2116	.0978	.0872	.0410
F	5.49**	6.00**	11.30**	13.27****

****p < .01; *p < .05; † p < 0.10. Note 1: Both models include the following time-varying control variables: age, delinquency, family structure, conflict frequency with parents, parental support, and parental power. Additionally, the OLS model includes the following time-invariant control variables: resilient personality, gender, and parental education. Note 2: The sample size is smaller compared to Table 2 because of the inclusion of parental education in the OLS and the omission of cases without values on parental education in the FE.**

CONCLUSION AND DISCUSSION

We investigated the effect of neighbourhood immigrant concentration on educational commitments. By employing separate analyses for migrant youth and native adolescents, we find that, as expected, natives are not influenced by this neighbourhood characteristic, while migrant youth are clearly affected by the ethnic composition of the neighbourhood. The results indicate that, for migrant youth, living in neighbourhoods with 10-20% or more than 20% ethnic minorities increase their educational commitments compared to living in neighbourhoods with less than 10% ethnic minorities. Moreover, we find that neighbourhoods with 10-20% ethnic minorities might be the most favourable, although the difference with more than 20% is only marginally significant. This finding brings together the two hypotheses we mentioned: the first hypothesis states that there is less native social capital and that there are less positive role models in ethnically concentrated neighbourhoods, hindering the development of educational commitments. The other hypothesis predicts that ethnic concentration can lead to stronger ethnic social networks, enabling minorities to help each other out, therewith facilitating the development of educational commitments. Our findings suggest that moderate proportions of immigrants in the neighbourhood are most favourably for the development of adolescents' educational commitments, because in such neighbourhoods they can profit the most from on the one hand contact with natives, bridging the gap to the native society, and on the other hand contact with co-ethnics, giving access to ethnic support networks. However, because we did not specifically test the possible mechanisms behind the neighbourhood effect, more research is needed to disentangle the underlying processes.

After finding support for the influence of the neighbourhoods' ethnic concentrations on educational commitments, we wanted to test whether commonly unobserved characteristics of the research population might alter the relationship between neighbourhood characteristics and individual outcomes. We hypothesised that adolescents with a resilient personality can cope better with environmental stress and demands, and will therefore experience weaker effects of neighbourhood characteristics on their educational commitments than do adolescents without a resilient personality. Our findings show that resilients are indeed influenced less by the neighbourhood's ethnic concentration. This indicates that resilients are more likely to develop their own value-orientations, despite outside pressures. The support we found for the neighbourhood's collective socialisation mechanism might thus only work for adolescents who are susceptible for socialisation. This is interesting, because personality theory assumes that resilients are better able to cope with stress and adversity, however, it seems that they are also less likely to take in positive environmental influences. Resilients seem to choose their own path amongst alternative commitments.

Our findings shine some interesting light on socialisation

mechanisms in neighbourhoods. As mentioned in the introduction, neighbourhood research often takes educational achievement as an outcome, while implying that adolescents are socialised by neighbourhood adults into having certain educational commitments, which consequently influences their achievement. We show that it is indeed quite likely that educational commitments are influenced by neighbourhood characteristics, albeit differently for migrant youth and native adolescents. And other studies have showed that educational commitment is related to greater school performance [Germeijs & Verschueren, 2007; Klimstra et al., 2012; Robbins et al., 2004]. It is therefore very plausible that youth's educational commitments are socialised through neighbourhood characteristics, and consequently influencing their educational achievement. However, other studies have shown that, for migrant youth, educational commitments are not always translated into educational achievement, while for native youth this is more likely to be the case [Elffers & Oort, 2013]. It is likely that other factors also influence educational achievement for migrant youth, such as discrimination or stigmatisation, which dissolve the positive influence educational commitments might have.

We try to overcome the problem of selection bias by employing fixed-effects models, which control for time-invariant unobserved individual characteristics. In our analyses, we find clear support for the idea of selection bias. However, our respondents, adolescents, are not in the position to choose their own neighbourhood. This decision is made by their parents. This means we are possibly dealing with an intergenerational selection effect [see also van Ham et al., forthcoming]. It is argued that neighbourhood effects are transmittable over generations, i.e., that parents are influenced by their own childhood neighbourhood, shaping their educational and occupational choices and thus influencing their resources later in life, including the resources available for their children and the neighbourhood in which they will raise their children [Sharkey & Elwert, 2011]. It is plausible that also neighbourhood selection effects are intergenerational transmittable: parents on the one hand choose the neighbourhood where they will raise their children and on the other hand influence their children's educational commitments. Considering these arguments, controlling for selection bias should dissolve any neighbourhood effects. This is true for native adolescents, but for migrant youth, we do find neighbourhood effects. Thus, our findings suggest such an intergenerational selection effect for native adolescents. For migrant youth, however, controlling for selection actually reveals the neighbourhood effects.

In the introduction, we made the point that unobserved heterogeneity might be the reason for the great variation in findings from the neighbourhood effects literature. We introduced two personal characteristics to look into this reasoning: a migration background and a resilient personality. The results clearly show that neighbourhood effects cannot be easily generalised. First, we do not find support for neighbourhood effects on native adolescents, however, we do find clear support that migrant youth's educational commitments

are affected by the ethnic composition of the neighbourhood. And second, strong differences seem to exist between adolescents with a resilient personality and those without. The influence of the neighbourhood's ethnic composition on adolescents without a resilient personality is much stronger than for resilient adolescents. To sum this up, we would like to stress the importance of knowing the background of your research population when examining neighbourhood effects. We find significant differences in the effect of neighbourhoods' migrant concentration on educational commitments between resilient and non-resilient migrant youth. This is a specific case, however, therefore it might be worthwhile to study this process with different outcome variables, different individual traits as moderators, and different neighbourhood characteristics.

Acknowledgements
We would like to thank David Manley, Rory Coulter and Dario Diodato for their valuable input in discussions about the modelling strategy used in this paper. Also we would like to thank the two anonymous reviewers of the Journal of Ethnic and Migration Studies for their helpful comments. Part of this research was financially supported by the EU [NBHCHOICE Career Integration Grant under FP7-PEOPLE-2011-CIG].

CHAPTER 6

Neighbourhood poverty, work commitment and unemployment in early adulthood:

the moderating effect of personality

Submitted for publiation

Jaap Nieuwenhuis, Rongqin Yu, Susan Branje,
Wim Meeus & Pieter Hooimeijer

ABSTRACT

We study how the neighbourhood shapes work commitment as well as unemployment. Because some youth may be more vulnerable to environmental stressors than others, we test whether adolescents with different personality types are differentially susceptible to influences of the neighbourhood. We use the personality typology based on Block and Block (1980), which distinguishes resilients, overcontrollers, and undercontrollers. Resilients are more adaptive and flexible to situational demands, while both overcontrollers and undercontrollers are relatively inflexible. We hypothesised that resilients are better able to adapt to the dominant societal norm that work is important, and are therefore better able to resist the influence of negative norms and attitudes in the neighbourhood. Overcontrollers and undercontrollers, however, are not flexible in adapting to societal norms, and may therefore more easily fall back on norms that are dominant in a more proximate area (e.g., the neighbourhood). To test our hypotheses, we used panel data [N = 203] with longitudinal information on adolescents from age 16 through 25. We tested whether the length of exposure to neighbourhood poverty between age 16 and 20 influences work commitment and unemployment in early adulthood at age 25. The findings showed that overcontrollers' and undercontrollers' work commitment is negatively related to longer exposure to neighbourhood poverty. Also, undercontrollers' unemployment is higher if they grew up in poor neighbourhoods. In line with our hypothesis, resilients were not influenced by neighbourhood poverty.

INTRODUCTION

When adolescents live in neighbourhoods with high levels of poverty, this is deemed detrimental for occupational outcomes later in life [e.g., Dietz, 2002; Durlauf, 2004; Ellen & Turner, 1997; Galster, 2002; van Ham et al., 2012; 2013]. This effect may be understood through the socialisation mechanism: youth in poverty neighbourhoods are more likely to be exposed to unemployment in their local area than youth in more affluent neighbourhoods. Youth in poverty neighbourhoods may therefore adopt negative work commitment, which, subsequently, may lead them to become unemployed as well. In the literature, the link with attitudinal change received little attention, and studies often only test the relationship between the neighbourhood context and occupational outcomes. In an attempt to open up this process, we looked at how the neighbourhood shapes work commitment as well as unemployment.

The outcomes of neighbourhood effects research are often biased by unmeasured individual characteristics, resulting in a great variation in results among studies. By including personality, we examine whether individual differences might result in different neighbourhood effects. Previous research showed that neighbourhood effects

work in dissimilar fashion for adolescents with different personalities. Youth with a resilient personality are better able to cope with neighbourhood poverty, as they experience a weaker effect of the neighbourhood on educational outcomes than youth with non-resilient personalities [Nieuwenhuis et al., 2013b, 2013c]. When looking at unemployment and work commitment, it might be that resilient youth are better able to conform to the societal norm that work is important in order to contribute to society and to sustain ones livelihood, while non-resilient youth is less successful in this aspect, and might therefore fall back on norm systems that are dominant in a more proximate area, such as the neighbourhood.

THEORY

To study neighbourhood effects on occupational outcomes, we develop hypotheses on how exposure to neighbourhood poverty during adolescence might predict adolescents' unemployment and work commitment. Then, we will argue why having different personalities might alter the relationship between neighbourhood characteristics and occupational outcomes.

Neighbourhood poverty and occupational outcomes

It is generally considered that exposure to neighbourhood poverty predicts negative occupational outcomes for youth. In the literature, various ideas exist about what might be the mechanisms behind this neighbourhood effect [Galster, 2012]. One prominent idea is the socialisation mechanism, which suggests that social behaviour is learned through conditioning and imitation of other's behaviour [Akers et al., 1979]. In a neighbourhood context this would mean that when certain behavioural norms are dominant amongst neighbourhood residents, neighbourhood adolescents are more likely to incorporate these norms and behave accordingly [Friedrichs & Blasius, 2005; Wilson, 1987]. Poor neighbourhoods are likely to contain more adult residents who have low paying jobs compared to more affluent neighbourhoods. This means that poor neighbourhoods are likely to contain less positive role-models who demonstrate the benefits of employment and more residents with lower job satisfaction [Kifle, 2013]. With prolonged exposure to neighbourhood poverty during their formative years in their parental neighbourhood, youth may internalise negative attitudes towards work. These internalised negative attitudes could result in a higher likelihood to become unemployed in early adulthood.

Besides socialisation, networks could play a role. In poor neighbourhoods, residents often have more bonding social capital, as compared to more bridging social capital in richer neighbourhoods [Kearns & Parkinson, 2001]. This means that in poor neighbourhoods, residents are less likely to have information about jobs and opportunities, so adolescents are less likely to build up social networks that are able to provide job information or can help them find a job [Buck,

2001], therewith increasing their chances for unemployment in early adulthood.

From the socialisation mechanism it follows that because of being exposed to neighbourhood poverty, youth might develop negative work commitment. Previous studies have already looked at 'hard' occupational outcomes: links have been found between neighbourhood poverty and income [Galster et al., 2007; Musterd et al., 2012] and unemployment [Brattbakk & Wessel, 2013; Manley & van Ham, 2012]. However, the link in between, i.e. that youth might develop negative work commitment in poor neighbourhoods, has not been studied before. By examining work commitment in a neighbourhood context, we aimed to gain more insight in how the socialisation mechanism operates.

Moderating role of personality

Although exposure to neighbourhood poverty in general leads to negative occupational outcomes, the associations might be different for individuals with different personalities. That is, not all youths' occupational outcomes might be equally affected by their neighbourhood environment. Some youths might have negative occupational outcomes as they are more vulnerable to the negative influence of the neighbourhood they lived in, while other youths might still have good occupational outcomes despite growing up in a poverty neighbourhood. Individuals with different personalities might differ in their responses to poverty neighbourhoods, and these youths therefore might have different occupational outcomes.

An influential typology of personality distinguishes three types: resilients, overcontrollers, and undercontrollers [Block & Block, 1980; Meeus et al., 2011]. These three personality types differ in the levels of ego-control, which refers to the tendency to contain versus express motivational impulses, and ego-resiliency, which refers to the tendency to respond flexibly to environmental demands. Whereas resilients respond relatively more adaptively and flexibly, both overcontrollers and undercontrollers are relatively inflexible in reacting to environmental challenges [Klimstra et al., 2010]. Because resilients are more flexible, it might be that they are better able to see the contrast between the norms of the more proximate area of the neighbourhood and that of society as a whole. Hence, they might be less susceptible to the influence of the neighbourhood than the less flexible overcontrollers and undercontrollers.

In addition, there are also differences among the two non-resilient personality types: overcontrollers have the tendency to move away from the environment, while undercontrollers tend to move against it [Denissen et al., 2008]. Although they are both inflexible in dealing with environmental stressors, overcontrollers are prone to internalise problem behaviours such as anxiety and depression and undercontrollers are inclined to externalise problem behaviours such as aggression and delinquency [e.g., Hart et al., 1997; Meeus et al., 2011]. This personality typology is an ideal candidate for studying

individuals' reactions to environmental challenges such as negative neighbourhood environments. We expect that neighbourhood adversity would interact with individuals' personality, provoking individuals with non-resilient personality types (i.e., overcontrollers and undercontrollers) to have more negative occupational outcomes under the influence of neighbourhood poverty, than resilient individuals.

To summarise, we first examine the direct association of exposure to neighbourhood poverty on both work commitment and unemployment, and, in order to see who is more at risk in poor neighbourhoods, we then test if adolescents with different personality types are influenced differently by exposure to neighbourhood poverty.

METHOD

Participants

Participants were 203 Dutch youths of the middle-to-late adolescent cohort of the CONAMORE sample who were not in full-time education during early adulthood and had a job (i.e., at risk of becoming unemployed). They were part of an ongoing panel study CONflict And Management Of RElationships study [CONAMORE; Meeus et al., 2010]. The middle-to-late adolescent cohort of the CONAMORE sample consists of 390 respondents recruited from various high schools in the province of Utrecht, the Netherlands, and had an average age of 16.7 years at the first wave. In waves 1, 2, 3, 4, 5 and 6 the number of respondents was 390, 390, 370, 369, 362, and 291, respectively. For the first five waves, sample attrition was very low (7% across waves). Attrition for the sixth wave was bigger (20%), because of the 5-year time gap between wave five and six, compared to the one-year gap between the earlier waves. We used data from all waves and the retrospective questions of the LHC. For cases with missing values on key variables we used list-wise deletion.

Measurements

The first five waves of the CONAMORE were collected annually, starting in 2001. The sixth wave was collected in 2010 and included an additional Life History Calendar [LHC, Caspi et al., 1996] with retrospective questions from the age of 12 until the sixth wave, about, amongst others, where respondents lived, when they finished education, and whether they have been (un)employed.

Work commitment. Work commitment was measured at the sixth wave for respondents who had a job, using the Utrecht-Management of Identity Commitments Scale [U-MICS; Crocetti et al. 2008], which consists of five items to measure the degree to which adolescents derive self-confidence from the occupational choices they made, with response categories 1 (completely true) to 5 (completely untrue). The items are (translated from Dutch): "My work makes me feel confident about myself"; "My work gives me certainty in life"; "Because of my work I feel certain about myself"; "My work gives certainty for the

future"; and "Because of my work I can perceive the future optimistically". We reverse coded the answers and constructed a scale for work commitment with high reliability (Cronbach's α = .92). The work commitment variable is skewed and we decided to use the logarithm to better approximate the normal distribution [von Eye & Mun, 2013].

Unemployment. For unemployment, we constructed a dichotomous variable measuring whether respondents have been unemployed for three months or more (1, n = 22) or not (0, n = 181), at the time of the sixth wave.

The LHC data is geo-coded, and includes all six-digit postcodes (areas containing, on average, 17 households) where respondents lived between the age of 12 and the time of the sixth wave. This enabled us to merge the individual-level data with neighbourhood characteristics on the postcode-level as provided by Statistics Netherlands [CBS, 2006].

To measure exposure to neighbourhood poverty, we used the average property value measured in 2004. The mean property value of dwellings in the neighbourhood is used as a proxy to measure neighbourhood wealth, since it captures the quality of the dwelling and the social and physical attributes of the neighbourhood [Visser et al., 2008]. The variable was measured at the scale of six-digit postcode areas, which is a good scale to measure socialisation, because socialisation is more likely to happen through neighbours in close proximity than through neighbours living blocks away [Oberwittler & Wikström, 2009]. To measure exposure, we calculated the number of months respondents lived in neighbourhoods in the lowest quintile of wealth (i.e., the poorest neighbourhoods), between the ages of 16 and 21. We chose these years because the parental neighbourhood may be more informative than the neighbourhood where people lived during early adulthood, because the latter can likely be seen as a transitional neighbourhood during the period of higher education.

Youths' personality was assessed annually for five years with the Quick Big Five questionnaire [Goldberg, 1992; Vermulst & Gerris, 2005]. Thirty personality markers were used to assess five personality dimensions (each with 6 items): extraversion (e.g., "talkative"), agreeableness (e.g., "sympathetic"), conscientiousness (e.g., "systematic"), emotional stability (e.g., "worried", reverse-scored), and openness to experience (e.g., "creative"). Adolescents rated their personality on a 7-point Likert scale ranging from 1 (very untrue) to 7 (very true). Various studies have reported adequate reliability and validity of this scale [e.g., Branje et al., 2007]. In the current study, across wave 1 to wave 5, Cronbach's αs ranged from .80 to .87 for extraversion, from .81 to .87 for agreeableness, from .85 to .91 for conscientiousness, from .80 to .83 for emotional stability, and from .76 to .77 for openness to experience. Several studies have shown that Block and Block's (1980) three personality types (i.e., overcontrollers, undercontrollers, and resilients) can be constructed directly from the Big Five dimensions [Robins et al., 1996; Klimstra et al., 2010; Meeus et al., 2011]. An earlier study constructed personality types with Latent

Class Growth Analysis [LCGA; Nagin, 2005] on the original 1313 cases, including the current sample [Branje et al., 2010]. Therefore, in the current research, we adopted that study's classification of personality types. The Big Five profiles of these three personality types were consistent with those of other studies [e.g., Asendorpf & van Aken, 2003; Dubas et al., 2002]. See Branje et al., 2010 for specific scores on Big Five traits for each personality type. In our sample, there were 70 (34.5%) overcontrollers, 63 (31.0%) undercontrollers, and 70 (34.5%) resilients. This was quite similar compared to the overall sample where the percentages were: O: 33.5%, U: 30%, R: 36.5%.

As control variables we used sex and highest achieved educational qualification. Sex was a dummy (male = 0 (39%); female = 1 (61%)). Education was captured in dummies from lowest to highest: 1) high school or lower (17%), 2) middle-level vocational education (22%), and 3) higher vocational education or university (61%).

Analytical method

In our analyses, the outcome variables unemployment and work commitment were both measured at the sixth wave, when respondents were on average 25 years of age. Both personality and exposure to neighbourhood poverty were measured over the period of the first five waves, i.e., between the ages 16 and 21. This way, exposure to neighbourhood poverty represents a lag, enabling us to test the effect of exposure in middle-to-late adolescence on outcomes in early adulthood.

Because of the different way of measuring of both dependent variables, we used two models: for the dichotomous variable unemployment we used logistic regression, and we used log-linear regression for work commitment. We calculated robust standard errors. To test whether adolescents with different personalities experienced different neighbourhood effects, we employed interaction effects between personality and exposure to neighbourhood poverty.

RESULTS

We examined whether adolescents with different personality types had different values on the three key variables: exposure to neighbourhood poverty, work commitment, and unemployment. Table 1 shows the descriptive statistics for each personality type, which revealed minor differences on the three key variables. We conducted a series of tests to examine whether any of the personalities differed significantly from other personalities, however, none of the results came back significant: neighbourhood poverty (ANOVA: F(2) = .50, p = .6096); work commitment (ANOVA: F(2) = .53, p = .5905); unemployment (Pearson chi2(2) = .8695, p = .647).

To test our hypotheses, we first looked at the direct effects of exposure to neighbourhood poverty on work commitment [Table 2: M1] and unemployment [Table 2: M2]. For the full sample we found no

significant neighbourhood effects. In fact, only the highest achieved education predicts both outcomes: lower educated respondent were more likely to have weaker work commitment and to be unemployed than higher educated respondents.

In Table 3 we included interaction effects between personality types and exposure to neighbourhood poverty in order to look into different neighbourhood effects for adolescents with different personalities. The model for work commitment [Table 3: M1] revealed significant interaction effects for both undercontrollers and overcontrollers. The model for unemployment [Table 3: M2] showed a significant interaction effect for undercontrollers and a marginally significant interaction effect for overcontrollers.

To get a better insight in the neighbourhood effects for the different personalities, we split the sample accordingly. In the models for work commitment we found a significant negative effect of exposure to neighbourhood poverty on work commitment for undercontrollers and overcontrollers. Resilients were not influenced by neighbourhood poverty (U: b = -.217, s.e. = .105, p = .043; O: b = -.195, s.e. = .081, p = .018; R: b = .140, s.e. = .125, p = .268). These findings support our hypothesis that only some adolescents who spent more time in poverty neighbourhoods adopt weaker work commitment in early adulthood.

The separate models for unemployment revealed that only undercontrollers experienced a positive effect of exposure to neighbourhood poverty on the likelihood to become unemployed. Overcontrollers and resilients experienced no neighbourhood effect (U: b = 2.672, s.e. = 1.248, p = .032; O: b = 1.489, s.e. = 1.699, p = .381; R: b = -4.279, s.e. = 2.885, p = .138).

Looking at the interaction effects [Table 3] and the separate outcomes for different personality types, we found that youths' personality moderates the associations between neighbourhood poverty and occupational outcomes. Resilient youth were not affected by neighbourhood poverty. Overcontrollers developed negative work commitment and undercontrolers showed less commitment and higher unemployment in early adulthood if they have been exposed to neighbourhood poverty in their formative years.

TABLE 1
Descriptive statistics of key variables for each personality type

	Exposure to neighbourhood poverty				Work commitment				Unemployment
	Mean	S.D.	Min.	Max.	Mean	S.D.	Min.	Max.	%
Undercontrollers	.12	.27	0	1	.81	.32	0	1.61	8
Overcontrollers	.09	.24	0	1	.80	.32	.13	1.61	11
Resilients	.08	.23	0	1	.86	.37	.13	1.61	13

TABLE 2
Models predicting early adulthood work commitment and unemployment (N = 203)

	M1: Log-linear regression of work commitment	M2: Logistic regression of unemployment
	coef. (s.e.)	coef. (s.e.)
Exposure to neighbourhood poverty	-.102 (.066)	1.126 (.767)
Personality		
U vs. r	-.042 (.059)	-.648 (.600)
O vs. r	-.062 (.058)	-.134 (.535)
Sex (female)	.019 (.050)	.467 (.488)
Education (ref.: 3) higher vocational education or university)		
1) high school or lower	-.204 (.057)**	1.095 (.643)†
2) middle-level vocational education	.033 (.060)	1.320 (.545)*
Intercept	.884 (.063)**	-2.933 (.637)**
R^2	.0721	.0735
F	3.62**	
Wald chi^2		10.01**

** **p < .01;** * **p < .05;** † **p < .10.**

TABLE 3

Interaction effects between adolescent personality types and exposure to neighbourhood poverty on early adulthood work commitment and unemployment (N = 203)

	M1: Log-linear regression of work commitment	M2: Logistic regression of unemployment
	coef. (s.e.)	coef. (s.e.)
Exposure to neighbourhood poverty	.148 (.109)	-4.536 (3.227)
Personality		
U vs. r	-.008 (.064)	-1.229 (.777)
O vs. r	-.035 (.063)	-.412 (.554)
Neighbourhood poverty*u vs. r	-.375 (.147)*	7.028 (3.449)*
Neighbourhood poverty*o vs. r	-.333 (.129)*	5.867 (3.427)†
Sex (female)	.016 (.050)	.513 (.508)
Education (ref.: 3) higher vocational education or university)		
1) high school or lower	-.200 (.057)**	.990 (.626)
2) middle-level vocational education	.038 (.060)	1.284 (.557)*
Intercept	.864 (.065)**	-2.684 (.604)**
R^2	.0861	.1044
F	5.04**	
Wald chi^2		13.36**

****p < .01; *p < .05; † p < .10.**

CONCLUSION AND DISCUSSION

In this paper, we set out to examine whether exposure to neighbourhood poverty during middle-to-late adolescence (between ages 16-21) influences the work commitment and unemployment chances of young adults (aged 25), and how this neighbourhood effect differs for individuals with different personality types. For the full sample we did not find any associations between neighbourhood poverty and work commitment and unemployment chances. However, we do find effects when examining the three personality types (undercontrollers, overcontrollers, and resilients) separately.

The finding that undercontrollers' and overcontrollers' work commitment is weaker with longer exposure to neighbourhood poverty during adolescence is in accordance with our hypotheses. That is, individuals with a non-resilient personality are more vulnerable to negative environments. These results are consistent with the findings of previous studies showing that individuals who score low on resiliency are particularly vulnerable to negative parenting behaviour and low friendship quality [O'Connor & Dvorak, 2001; Dubas et al., 2002; van Aken, & Dubas, 2004]. These findings underscore the need for research that would clarify why overcontrollers and undercontrollers are more vulnerable to negative environments than resilients. It may be that resilients are better able to conform to the dominant norm in society that work is important, and are therefore better able to resist the influence of negative norms and attitudes in the neighbourhood. Overcontrollers and undercontrollers, however, are inflexible in adapting to societal norms, and may therefore more easily fall back on norms that are dominant in a more proximate area. Thus, they may be more likely to absorb the negative norms and attitudes about work when growing up in poverty neighbourhoods, leading to low work commitment.

In addition, we found that exposure to neighbourhood poverty during adolescence predicts a higher possibility of unemployment during early adulthood only for undercontrollers but not for overcontrollers and resilients. The varying effects we found for each personality type suggest a differential susceptibility to neighbourhood effects, which concurs with studies with person-environment interactions with different contextual predictors [for a review, see Belsky & Pluess, 2009]. It seems that although the work commitment of overcontrollers is weaker if they grow up in a poverty neighbourhood, their chances for unemployment are not affected. For undercontrollers, however, both work commitment and employment chances are lower if they grow up in a poverty neighbourhood. These results seem to point to a differential effect of neighbourhood poverty for overcontrollers' employment status and work commitment. The results might be explained by their relatively high level of conscientiousness and neuroticism. Conscientious individuals tend to be purposeful and determined rather than undependable and lazy [Hogan & Holland, 2003]. Conscientiousness is positively related to self-reported assertive

job-hunting behaviour [Schmit et al., 1993]. Neurotic individuals are stress prone, moody, lack self-esteem, and are insecure. It may be that poverty neighbourhoods lead to an insecure feeling for overcontrollers when they do not have a job, decreasing their commitment to work. Yet, as they have a high level of conscientiousness, they search actively for employment and low commitment therefore does not lead to high unemployment. The results might be also understood by overcontrollers' and undercontrollers' differential basic tendency towards the outside world. Overcontrollers tend to move away from the world, meaning that they tend to attribute problems (e.g., unemployment) to themselves. They also tend to act as followers in society (e.g., everyone should try to find a job). These combined thoughts of 'it is my own problem if I don't have a job' and 'everyone should try to find a job' might provoke overcontrollers to actively search for a job. However, undercontrollers have the tendency to move against the world, meaning that they are more aggressive and more likely to attribute problems (e.g., unemployment) to society. They are more likely to be repellent towards society as well, thus they might not actively search for a job, especially when they live in poor neighbourhoods where more negative values towards employment are present.

CHAPTER 7

Conclusion

INTRODUCTION

The aim of this dissertation is *to investigate how neighbourhood effects on social mobility might be affected by parenting, problem behaviour, personality, and educational commitments*. This aim came about when we considered the great variety in research findings from the neighbourhood effects literature, ranging from weak to strong neighbourhood effects, as well as insignificant effects and effects with reversed signs. We set out to study four factors that might mediate or moderate the neighbourhood effect on socio-economic outcomes. We look at the mediating role of parenting strategies and adolescent problem behaviour, and at the moderating role of personality and educational commitments. We expect the effect of the neighbourhood to differ between individuals who score differently on these four characteristics. Below we will shortly summarise the findings of the five research chapters and discuss the implications and limitations of this research.

RESEARCH FINDINGS

Heterogeneity in neighbourhood effects research findings

In order to describe and explain the heterogeneity research findings of neighbourhood effects studies, we conducted a systematic review and meta-analysis of all the quantitative literature on neighbourhood effects on educational outcomes in chapter 2. We found that neighbourhood effects studies often use different neighbourhood characteristics to study the influence of the neighbourhood. When examining the characteristics, they can be brought back to four categories: neighbourhood poverty, a poor educational climate, the proportion of migrant/ethnic groups, and social disorganisation in the neighbourhood. We found that, despite the big differences in research findings between studies, neighbourhood effects persist in the meta-analyses, even after controlling for study characteristics. This finding suggests that neighbourhoods certainly matter for adolescents' educational outcomes.

The variance in findings from different studies can partly be explained by individual study characteristics. We controlled for the inclusion of school-related variables in the models, because the school is likely to be a competing context for youth's educational socialisation. However, the results are actually not so straightforward: in some models the *inclusion* of school-related variables leads to weaker neighbourhood effects, however, in others it leads to stronger neighbourhood effects. A possible explanation for the latter finding might be that good schools compensate for the detrimental effects of bad neighbourhoods. Therefore, when school-related variables are controlled for, the estimation of the neighbourhood effect is not influenced by the differences between the schools that the students attend, and a stronger neighbourhood effect results. A

possible explanation for weaker neighbourhood effects after including school-related variables might be that the demographic composition of the school and the neighbourhood are overlapping. If this is true, the neighbourhood effect would be mediated by the school, resulting in a weaker neighbourhood effect compared to a model without school-related variables. The contradictory findings demand future research on the interactions between the neighbourhood and school-context.

Of special interest for this dissertation is the use of control variables for parenting, because different parenting strategies might serve as a moderator against negative influences from neighbourhood disadvantage. We hypothesised that in neighbourhoods with high levels of poverty or ethnic heterogeneity, parents will parent more and youth will benefit more from parenting than in low-poverty neighbourhoods. Therefore, when a control variable for parenting behaviour is *omitted* from the model, the shielding effect of parenting on the neighbourhood's influence on educational achievement will be incorporated in the neighbourhood coefficient, effectively leading to a weaker neighbourhood effect. We found that studies that control for parenting behaviour in their models find stronger negative neighbourhood effects on educational outcomes than studies that do not include a control variable for parenting. This finding supports our hypothesis that parenting can diminish the neighbourhood effect.

On the individual level we often found 'previous educational attainment' used as a control variable in studies, however, there are hardly any studies looking at within-person characteristics. Most likely the choice of variables is data-driven, but as we have hypothesised, attitudinal and personal variables might serve an important moderating role against negative neighbourhood influences. With this dissertation, we attempted to examine this gap in the literature.

Parenting and problem behaviour

In chapter 3 we studied whether the neighbourhood effect on educational attainment is mediated by parenting strategies, as well as by adolescent problem behaviour. We investigated two neighbourhood characteristics: the proportion of immigrant groups and the mean property value in the neighbourhood. However, both are not mediated by parenting strategies and problem behaviour. We did find that parents are likely to adapt their parenting behaviours to the demographic composition of the neighbourhood. For example, parents in neighbourhoods with higher ethnic heterogeneity apply more protective parenting strategies. However, we did not find that the changes in parenting behaviour change the neighbourhood effect, which conflicts with the finding from our meta-analysis that controlling for parenting behaviour leads to stronger neighbourhood effects. It might be, however, that our measure for educational attainment in chapter 3 does not totally capture the 'real' educational attainment, as it measured by the educational degree when adolescents are still in high school, and not the degree they obtained in the end.

Personality and educational commitments

In chapter 4 we set out to examine personality and educational commitments as possible characteristics that moderate the relationship between the neighbourhood and educational attainment. First, we hypothesised that adolescents with a resilient personality experience a weaker neighbourhood effect than overcontrollers and undercontrollers, because resilients are better able to cope with neighbourhood adversity. This hypothesis was supported by our analysis; moreover, our analyses indicate that the group of resilient adolescents experiences no influence at all of neighbourhood disadvantage on educational attainment. Second, we hypothesised that educational commitments might moderate the negative influence of neighbourhood disadvantage. This was supported by our analyses. We find that adolescents with the highest level of educational commitments are not or hardly affected, while adolescents with the lowest level experience a strong negative influence of neighbourhood disadvantage.

In chapter 5 we further explore the moderating role of personality by analysing differences between native and migrant adolescents. We investigated the effect of immigrant concentrations in the neighbourhood on educational commitments. Our results show no effect for native adolescents. However, for migrant youth we find that living in neighbourhoods with moderate proportions of immigrants increases the educational commitments compared to living in neighbourhoods with lower proportions. This finding supports our hypothesis that ethnic concentration can lead to stronger ethnic social networks, which can enable minorities to help each other, therewith stimulating social mobility. When testing the moderating role of personality, we find, similar to the results of chapter 4, that adolescents with a resilient personality experience less influence of the neighbourhood context than do adolescents with other personalities.

Because educational success influences employment opportunities, the neighbourhood effect on education is likely to also be an indirect effect on occupational chances later in life. However, the neighbourhood in which adolescents grow up might also directly affect occupational chances. In chapter 6 we looked into this by analysing the effect of exposure to neighbourhood poverty during adolescence on unemployment and work commitments in early adulthood, while controlling for highest attained educational level. We included the moderating role of personality again to assess the robustness of the findings from chapters 4 and 5 on outcomes other than education. We find that undercontrollers' work commitments and unemployment and overcontrollers' work commitments are influenced by the neighbourhood, while resilients remain unaffected. This finding is in line with the idea that resilients are better able to cope with environmental demands, while overcontrollers and undercontrollers are more likely to be affected by their environment. Also, this result emphasises the importance of personality as a moderator in neighbourhood effects studies. The personality of the individual respondents affects not only the influence of the neighbourhood on educational outcomes,

but also on occupational outcomes.

Discussion

Chapters 3 to 6 shed some light on the main aim of this dissertation: to investigate how neighbourhood effects on social mobility might be affected by parenting, problem behaviour, personality, and educational commitments. It seems that including parenting strategies and adolescent problem behaviour as mediators, does not change the relationship between neighbourhood characteristics and educational attainment. However, as mentioned above, our measure for educational attainment did not measure the obtained degree at the end of high school. Perhaps, with a different measure for educational attainment, the conclusion about the mediating role of parenting and problem behaviour might be different. It is possible that mediation can only be found at the end of the high school trajectory.

Much more promising than the mediating role of parenting and problem behaviour seems the moderating effects of educational commitments and personality. First, stronger educational commitments seem to work as a moderator against the negative influence of the neighbourhood on educational attainment. And second, adolescents with a resilient personality experience only a weak or even no influence of the neighbourhood on educational attainment, educational commitments, work commitments, and unemployment. This in contrast with the stronger neighbourhood effects found for adolescents with a non-resilient personality. These findings support our initial idea that the effects of neighbourhood adversity are moderated by personal characteristics.

When we relate these findings back to our initial observation of the great heterogeneity in research findings from neighbourhood effects studies, it suggests that unobserved heterogeneity in research samples could lead to instable results. We observed substantially different results for adolescents with different personality types or educational commitments. This means that individual factors should be taken into account more carefully when assessing neighbourhood effects, in order not to overgeneralise. However, the gap in the literature most likely also reflects a gap in the data, e.g., parenting is often available, and measures for personality are not. Future data collections would benefit from including more measures on attitudes and personality, in order to assess who is and who is not affected by the neighbourhood.

By employing fixed-effects (FE) models in chapter 5 we looked into the problem of selection bias. We compared FE models with OLS regression models and find a clear distinction between the results. We show that when controlling for all time-invariant unobserved characteristics in the FE model, for migrant youth, neighbourhood effects emerge more clearly compared to OLS. For native youth, neighbourhood effects seem to disappear in the FE model. These results support the idea of selection bias, and by employing FE models, we can partly control for it. However, although clearly superior to OLS

models, FE models only solve selection bias caused by time-invariant unmeasured characteristics, and therefore selection bias may still be present. Nevertheless, the differences between FE and OLS models suggest the importance of taking some effort to minimise the selection bias. Furthermore, FE models should be complemented with research samples of adolescents without a resilient personality or with low educational commitments, in order to get more reliable neighbourhood effects and to assess the importance of the neighbourhood for risk groups.

Our results suggest differential susceptibility to neighbourhoods. Resilients and highly committed adolescents are less susceptible to neighbourhood poverty and neighbourhoods' demographic composition. For example, resilients are less susceptible to the adverse effect of neighbourhood poverty than non-resilient adolescents, and resilient migrant youth are less susceptible to the positive externalities of living in neighbourhoods with certain immigrant concentrations than non-resilient migrant youth. These findings concur with the current literature on person-environment interactions [for a review, see Belsky & Pluess, 2009]. We added the neighbourhood environment to this literature, a context thus far understudied, but, as this dissertation shows, quite an important context when studying person-environment interactions.

For adolescents living in deprived neighbourhoods our findings mean that they are not necessarily predestined to have worse socio-economic outcomes. Personality and educational commitments play an important role in moderating negative neighbourhood effects. More resilient and committed youth are better able to choose their own path and counter negative environmental pressures. Risk groups, however, might benefit from educational programs that help them to buffer negative neighbourhood effects.

LIMITATIONS AND FUTURE RESEARCH

Considering within-person traits, we mainly focussed on personality [chapters 4-6], however, personality probably tells only part of the story. Other within-person traits have been studied in a neighbourhood context, e.g., the effect of neighbourhood disadvantage on antisocial behaviour was found to interact with genetic susceptibility [Tuvblad et al., 2006]. Also, certain genes were found to buffer effects of disadvantaged family environments [Åslund et al., 2011; Cicchetti & Rogosch, 2012; Nederhof et al., 2012]. Furthermore, neighbourhood effects on developmental outcomes have been hypothesised to be related to stress levels within individuals [Morales & Guerra, 2006], i.e., neighbourhood disadvantage might increase individuals' stress levels, resulting in negative developmental outcomes [Schulz et al., 2000]. Including such genetic and physiological characteristics into neighbourhood effects studies on educational outcomes might provide even more insight into the role of within-person traits in the resilient

functioning of adolescents in disadvantaged neighbourhoods.

A problem often faced in the neighbourhood effects literature is that of reversed causality, i.e., that the outcome variables may actually predict the neighbourhood characteristics, instead of the other way around. This could be true when studying e.g., neighbourhood effects on individual income, since income is also likely to predict the type of neighbourhood people choose to live in. Because we only looked at neighbourhood effects during adolescence, reversed causality might be less of a problem for this study, because in general, adolescents are not able to choose the neighbourhood they live in, as their parents make this decision. One could, however, argue that certain characteristics of the adolescent drive parents to make moving decisions. For example, when parents notice their child doing poorly in school, they might decide to move to a better neighbourhood, closer to a better school. Reversed causality could bias our results; however, because adolescents do not make the moving decisions, we believe this bias will not be as severe as it might be in adult research samples.

A limitation of this dissertation, but also of the neighbourhood effects literature as a whole, is the bias for the Western world. From the meta-analysis in chapter 2 it emerged that there are only a few quantitative studies of neighbourhood effects on educational outcomes outside Europe and the US, i.e., four from Canada, three from Australia, and one from Taiwan. It seems the bias lies in the Western world, with Taiwan as a notable exception. One could argue, however, that due to cultural differences neighbourhood effects transpire differently in a Chinese society than in a Western one. Compared to Western societies, in Chinese societies there is a larger emphasis on parents' strict guidance of their children's educational development as well as specifying a hierarchical relationship of children's obedience towards their parents [Wu, 2013]. This contrasts with the West, where parenting strategies of negotiation and decision-freedom of children are more common. In chapter 3 we failed to find a relationship between parenting and neighbourhood effects on educational attainment in the Netherlands. However, due to the different nature of Chinese compared to Western parenting strategies, it is possible that Chinese parents buffer youth more from the negative influence of the neighbourhood, which could result in different neighbourhood effects.

De invloed van de buurt op de prestaties van jongeren

verschillen per persoonlijkheidstype

INLEIDING

Sinds de publicatie van Wilson's [1987] *The truly disadvantaged* is er een groeiende interesse in zogenaamde 'buurteffecten', het idee dat individuele levenskansen worden beïnvloed door de kenmerken van de buurt waarin mensen wonen. Dit effect zou in het bijzonder sterk kunnen zijn voor adolescenten, omdat hun mobiliteit en vriendengroep waarschijnlijk dichter bij huis zijn dan voor oudere groepen. Het is waarschijnlijk dat deze groep het meest ontvankelijk is voor invloed van de buurt; op onderwijsuitkomsten gedurende adolescentie en op werkuitkomsten gedurende vroege volwassenheid. Dit effect zou overeind moeten blijven, zelfs wanneer andere belangrijke contexten, zoals de familie en de school, mee worden genomen. Buurteffecten hebben niet alleen aandacht gekregen van academici [zie bijv.: Dietz, 2002; Durlauf, 2004; Ellen & Turner, 1997; Galster, 2002; van Ham e.a., 2012; 2013], maar ook van beleidsmakers. Door middel van het mengen van huurders en huisbezitters, proberen beleidsmakers buurten te mengen op basis van inkomen. Dit zou moeten leiden tot desegregatie van achtergestelde groepen in buurten, en daarmee tot een afzwakking van het potentiële buurteffect [Kleinhans, 2004; Musterd, 2002].

Een hardnekkig probleem in het onderzoek naar buurteffecten op sociaaleconomische uitkomsten van adolescenten is de variatie in onderzoeksbevindingen tussen verschillende studies. Eerdere onderzoeken vinden zwakke en sterke effecten, significante en niet significante effecten en zelfs effecten in omgekeerde richting. Daarnaast lukt het buurteffectenstudies vaak niet om de totale variantie op buurtniveau te verklaren, een aanwijzing dat er belangrijke variabelen ontbreken in de analyses. We vermoeden dat bepaalde familie en individuele kenmerken de negatieve effecten van buurtachterstand beïnvloeden. Specifieker kijken we naar de mediatie van buurteffecten via opvoedstijlen van ouders en probleemgedrag van jongeren, en naar de moderatie via persoonlijkheid en binding met school. Eerdere literatuur heeft reeds voorgesteld dat buurteffecten worden gemedieerd door opvoedstijlen [Galster, 2012]. Wij hebben getest voor zowel mediatie door opvoedstijlen als door probleemgedrag. De buurt beïnvloedt opvoedstijlen en probleemgedrag, die op hun beurt de sociale mobiliteit van adolescenten beïnvloeden. Veel zeldzamer in de literatuur over buurteffecten is een focus op kenmerken als persoonlijkheid en binding met school. Wij kijken naar de rol van persoonlijkheid en binding met school door te testen of deze kenmerken de invloed van de buurt op onderwijsuitkomsten modereren. Het bestuderen hoe buurteffecten worden gemedieerd en gemodereerd kan een nieuw perspectief bieden op de vraag waarom verschillende studies zulke uiteenlopende buurteffecten vinden. Hieruit volgt het doel van dit proefschrift: *onderzoeken hoe buurteffecten op sociale mobiliteit worden beïnvloed door opvoedstijlen, probleemgedrag, persoonlijkheid en binding met school*.

FACTOREN DIE INVLOED HEBBEN BUURTEFFECTEN

Om te onderzoeken of buurteffecten verschillen voor adolescenten met verschillende familie en individuele kenmerken, kijken we naar opvoedstijlen, probleemgedrag, persoonlijkheid en binding met school. Hieronder zullen we bespreken hoe deze kenmerken zijn bestudeerd in eerder onderzoek en hoe ze de relatie tussen buurtkenmerken en sociale mobiliteit kunnen veranderen.

De familie is een van de belangrijkste omgevingen wat betreft de ontwikkeling van adolescenten. Echter, de familie als context is genest in de context van de buurt. Opvoedstrategieën zijn een middel voor ouders om hun eigen onderwijsaspiraties over te dragen op hun kinderen en om het schoolsucces van hun kinderen te stimuleren. De volgorde zou in dit geval zijn dat de buurt opvoedstrategieën beïnvloedt, welke daarop de onderwijsuitkomsten van adolescenten beïnvloeden. Dit suggereert dat opvoedstijlen functioneren als een mediërende factor tussen de buurt en onderwijsuitkomsten. Wanneer opvoedstijlen niet worden meegenomen in analyses, zouden gevonden buurteffecten op onderwijsuitkomsten in werkelijkheid een effect van opvoedstijlen kunnen zijn. Verschillende ouders kunnen verschillend reageren op de toestand in de buurt, wat mogelijk leidt tot een differentiatie in hoe adolescenten hun buurt ervaren. Zo is het gevonden dat ouders meer beschermende opvoedstijlen toepassen in buurten met hoge armoede, om zo hun kinderen te beschermen tegen de negatieve invloed van de buurt [Furstenberg e.a., 1999; Pinkster & Fortuijn, 2009]. Verder kan worden beargumenteerd dat ouders in meer achtergestelde buurten meer stress ervaren, door een hogere mate aan economische problemen en onzekerheid [Hill, 1949]. Meer stress kan leiden tot te strenge, inconsistente en minder steunende opvoedstijlen [Downey & Coyne, 1990; Klebanov e.a., 1994; Kohen e.a., 2008; McLoyd, 1998]. Het lijkt er op dat de mediatie van het buurteffect door opvoedstijlen twee kanten op kan gaan: armoede in de buurt kan leiden tot meer beschermende of minder steunende opvoedstijlen; beide leiden tot andere onderwijsuitkomsten voor jongeren.

Een ander vaak waargenomen probleem in achtergestelde buurten is een toename in de kans op probleemgedrag bij jongeren [Jencks & Mayer, 1990]. Jongeren die opgroeien in achtergestelde buurten zijn blootgesteld aan minder positieve rolmodellen, zien minder mogelijkheden voor de toekomst, voelen zich vaker sociaal geïsoleerd, gestigmatiseerd en niet erkend door de samenleving [Ainsworth, 2002; Sampson & Raudenbush, 2004; Wacquant, 2008; Wilson, 1987]. Het gevoel niet erkend te worden kan leiden tot een verlies aan zelfvertrouwen [Honneth, 1995], wat weer kan leiden tot een hogere kans op probleemgedrag [Donnellan e.a., 2005; Wissink e.a., 2008]. Wanneer jongeren geen erkenning ervaren in het onderwijs, door een gebrek aan goede rolmodellen in de buurt, kan dit er toe leiden dat ze deze erkenning elders zoeken. Bijvoorbeeld via vriendengroepen waar status en erkenning behaald worden door middel van gewelddadig gedrag [Ge e.a., 2002; Staff & Kreager, 2008; Willis, 1977]. Positieve

attitudes jegens gewelddadig gedrag kunnen leiden tot probleemgedrag in de schoolomgeving, daarmee de kansen op schoolsucces verkleinend. Omdat adolescenten in achterstandsbuurten meer kans hebben om blootgesteld te worden aan dergelijke vriendengroepen [Sampson e.a., 1997; Johnson, 2010], is het waarschijnlijk dat de invloed van de buurt wordt gemedieerd door probleemgedrag. Door probleemgedrag als een mediërende factor op te nemen, proberen we te bestuderen of de buurt een directe invloed heeft op onderwijsuitkomsten, of dat dit via probleemgedrag loopt.

Na gekeken te hebben naar familie- en gedragskenmerken, onderzoeken we of de persoonlijkheid van adolescenten een modererende rol speelt tegen negatieve buurteffecten. Het is mogelijk dat sommige adolescenten flexibeler zijn en beter om kunnen gaan met de druk van de buurt dan anderen. Verschillende studies hebben er al op gewezen dat er een relatie bestaat tussen buurteffecten en persoonlijkheidskenmerken: het effect van impulsiviteit op delinquentie verschilt tussen meer en minder achtergestelde buurten [Lynam e.a., 2000; Meier e.a., 2008; Zimmerman, 2010]. Ook beïnvloeden buurtkenmerken: het effect van weinig zelfvertrouwen op gewelddadig slachtofferschap [Gibson, 2012]; het effect van hyperactiviteit, impulsiviteit en aandachtsproblemen op controleproblemen [Zalot e.a., 2009]; en het effect van zoeken naar opwinding en avontuur en van gebrek aan de vaardigheid om vooruit te plannen op crimineel gedrag [Jones & Lyman, 2009]. Deze studies suggereren dat het nuttig kan zijn om persoonlijkheid eveneens op te nemen in de studie naar de invloed van buurten op onderwijs- en werkuitkomsten.

Om te meten welke adolescenten beter kunnen omgaan met invloeden van de buurt gebruiken we drie persoonlijkheidstypen, welke verschillende scoren op de categorieën ego-controle en ego-veerkracht: veerkrachtigen, ondercontrollers en overcontrollers [Block & Block, 1980]. Ego-controle verwijst naar de neiging emotionele en motivationele impulsen te uiten of te beheersen en ego-veerkracht naar de neiging om flexibel te reageren op veranderende eisen vanuit de omgeving [Klimstra e.a., 2010; Meeus e.a., 2011]. Veerkrachtigen worden gekenmerkt door een gemiddelde mate aan ego-controle en een hoge mate aan ego-veerkracht. Ondercontrollers en overcontrollers scoren beide laag op ego-veerkracht, maar ondercontrollers hebben een lage mate aan ego-controle, terwijl overcontrollers een hoge mate aan ego-controle hebben [Asendorpf e.a., 2001; Caspi, 1998]. Veerkrachtige adolescenten zijn de best aangepaste groep en zijn waarschijnlijkheid het meest effectief in omgaan met invloeden van de buurt, omdat ze flexibel en adaptief kunnen reageren op de eisen van hun omgeving. Om uit te vinden of buurtachterstand een verschillende invloed heeft op adolescenten met verschillende persoonlijkheidstypen, testen we het modererende effect van persoonlijkheid op de invloed van de buurt op onderwijs- en werkuitkomsten.

Naast een bepaalde persoonlijkheid kunnen adolescenten ook geïnternaliseerde doelen en waarden met betrekking tot onderwijs hebben, die hen kunnen helpen beter om te gaan met negatieve

invloeden van buurtachterstand op hun onderwijsuitkomsten. Om dit te testen kijken we naar de modererende rol van binding met school. Binding met school verwijst naar de mate waarin adolescenten zich identificeren met en zich zeker voelen over de onderwijs gerelateerde keuzes die ze hebben gemaakt, en in hoeverre ze deze keuzes hebben geïnternaliseerd [Luyckx e.a., 2006]. Eerder onderzoek heeft een relatie gevonden tussen sterkere binding met school en een lagere kans op studievertraging of voortijdig schoolverlaten [Germeijs & Verschueren, 2007; Klimstra e.a., 2012; Robbins e.a., 2004], de vaardigheid om zich aan te passen aan onderwijs gerelateerde eisen [Luyckx e.a., 2006], schoolse competenties, arbeidsethos en de motivatie iets te bereiken [Meeus e.a., 2002]. Omdat binding met school verwijst naar de doelen en waarden die een adolescent voor zijn/haar leven heeft gesteld, is het aannemelijk dat binding met school een modererende rol kan hebben met betrekking tot de negatieve invloed van buurtachterstand. Adolescenten met een sterke binding met school die in een achterstandsbuurt wonen, ervaren mogelijk minder negatieve invloed van de buurt in vergelijking met adolescenten in achterstandsbuurten met een zwakke binding met school.

Samengevat: we onderzoeken welke factoren jongeren beschermen tegen negatieve invloeden van buurtachterstand op onderwijs- en werkuitkomsten. We kijken in het bijzonder naar adolescenten wiens ouders verschillende opvoedstijlen toepassen, adolescenten met verschillende mate van probleemgedrag, verschillende persoonlijkheid en verschillende binding met school. Door aan te tonen welke factoren leiden tot verschillen in buurteffecten tussen adolescenten, proberen we duidelijkheid te brengen in de vraag waarom de resultaten van verschillende studies naar buurteffecten zo variëren. We vermoeden dat deze vier factoren een deel van de variantie in onderzoeksbevindingen kan verklaren.

METHODOLOGIE

Selectiebias is een probleem waarmee alle studies over buurteffecten te maken hebben. De onderliggende gedachte is dat buurten geen willekeurige verzamelingen van huishoudens zijn, maar dat families zichzelf sorteren in buurten aan de hand van hun voorkeuren en economische beperkingen. Als selectiebias niet in acht wordt genomen lopen studies de kans dat de gevonden buurteffecten in werkelijkheid worden veroorzaakt door ongemeten kenmerken van de familie. Kort gezegd, individuele kenmerken die de keuze voor een bepaalde buurt beïnvloeden kunnen eveneens de bestudeerde uitkomstvariabele beinvloeden. Echter, onze respondenten zijn adolescenten, wie over het algemeen niet in staat zijn hun eigen buurt te kiezen. Die beslissing wordt gemaakt door hun ouders. Men zou kunnen beargumenteren dat hierdoor de selectiebias minder van belang is voor adolescenten. Echter, een intergenerationele selectiebias is ook mogelijk [Sharkey & Elwert, 2011; van Ham e.a., in druk]. Het is aannemelijk dat dezelfde

kenmerken van de ouders (bijv., inkomen, opleiding, cognitieve vaardigheid) zowel de buurtkeuze als de onderwijsuitkomsten van adolescenten beïnvloeden. Daarom is het belangrijk om in onze studie te testen voor selectiebias.

Omdat we de beschikking hebben over longitudinale paneldata met zes meetmomenten, zijn we in staat te controleren voor selectiebias met behulp van fixed-effects (FE) modellen. Deze techniek controleert voor alle tijdsinvariante, niet geobserveerde kenmerken die mogelijk gecorreleerd zijn met zowel buurtselectie als de onderwijsuitkomsten van jongeren. Hiermee wordt het effect van deze ongemeten kenmerken die mogelijk selectiebias kunnen veroorzaken verwijderd [Allison, 2009].

ONDERZOEKSBEVINDINGEN

De bevindingen uit de vijf hoofdstukken laten zich samenvatten aan de hand van drie thema's: de heterogeniteit in bevindingen van studies naar buurteffecten, opvoedstijlen en probleemgedrag, en persoonlijkheid en binding met school.

Heterogeniteit in bevindingen van studies naar buurteffecten

Om de heterogeniteit in onderzoeksbevindingen van buurtstudies te beschrijven en verklaren hebben we een systematische review en meta-analyse over alle kwantitatieve literatuur over buurteffecten op onderwijsuitkomsten uitgevoerd in hoofdstuk 2. We vonden dat de studies over de invloed van buurten vaak verschillende buurtkenmerken gebruiken om buurteffecten te bestuderen. We kunnen deze kenmerken terugbrengen tot vier categorieën: buurtarmoede, een achtergesteld onderwijsklimaat, de proportie migranten/etnische groepen en sociale onrust in de buurt. We vonden dat, ondanks de grote verschillen in onderzoeksbevindingen tussen studies, dat buurteffecten overeind blijven in de meta-analyse, zelf wanneer we controleren voor kenmerken van de studies zelf. Deze uitkomst wijst er op dat buurten wel degelijk van belang zijn voor de onderwijsuitkomsten van jongeren.

De diversiteit in uitkomsten tussen verschillende studies kan deels worden verklaard door individuele kenmerken van de studies. We controleerden voor de aanwezigheid van school gerelateerde variabelen in de modellen, omdat de school waarschijnlijk een concurrerende context is voor de educatieve socialisatie van jongeren. Echter, de resultaten zijn niet eenduidig: in sommige modellen leidt de aanwezigheid van school gerelateerde variabelen tot zwakkere buurteffecten, maar in anderen tot sterkere buurteffecten. Een mogelijke verklaring voor sterkere buurteffecten is dat een goede school mogelijk compenseert voor de negatieve effecten van een slechte buurt. In dat geval, wanneer er wordt gecontroleerd voor school gerelateerde variabelen, wordt het geschatte buurteffect niet beïnvloed door de

verschillen tussen de scholen waar jongeren onderwijs volgen, wat resulteert in een sterker buurteffect. Een mogelijke verklaring voor zwakkere buurteffecten na opname van school gerelateerde variabelen is dat de demografische samenstelling van de school en de buurt kunnen overlappen. Als dit waar is, dan wordt het buurteffect gemedieerd door de school, wat resulteert in een zwakker buurteffect vergeleken met een model zonder school gerelateerde variabelen. De tegengestelde bevindingen vereisen nieuw onderzoek naar de interactie tussen de buurt- en schoolcontext.

Een uitkomst die in het bijzonder interessant is voor dit proefschrift is het gebruik van controle variabelen voor opvoedstijlen, omdat verschillende opvoedstijlen de negatieve invloed van buurtachterstand mogelijk modereren. We stelden dat in buurten met een hoge mate van armoede of etnische heterogeniteit, ouders beter hun best zouden doen en dat jongeren meer baat zouden hebben van opvoeding dan jongeren in buurten met een lage mate van armoede. Hierop volgt dat wanneer studies niet controleren voor opvoedstijlen, het beschermende effect van opvoeden op de negatieve invloed van de buurt op schoolsucces wordt opgenomen in de buurtcoëfficiënt, wat zou resulteren in een zwakker buurteffect. We vonden dat studies die controleren voor opvoedstijlen in hun modellen een sterker negatief buurteffect op onderwijsuitkomsten vinden dan studies die niet controleren voor opvoedstijlen. Deze bevinding ondersteunt onze stelling dat opvoeden het buurteffect kan afzwakken.

Op individueel niveau vonden we dat het gebruik van 'eerder schoolsucces' als een controle variabele in studies vaak voorkomt, echter we vonden zelden studies die keken naar intra-persoonlijke kenmerken. Waarschijnlijk is de keuze voor variabelen bepaald door de data, maar wij stellen dat attitudes en persoonlijke variabelen een belangrijke modererende rol kunnen spelen tegen de negatieve invloed van de buurt. Met dit proefschrift proberen we dit gat in de literatuur te vullen.

Opvoedstijlen en probleemgedrag

In hoofdstuk 3 hebben we bestudeerd of de invloed van de buurt op schoolsucces wordt gemedieerd door opvoedstijlen van ouders en probleemgedrag van jongeren. We bekeken twee buurtkenmerken: de proportie immigranten en de gemiddelde woningwaarde in de buurt. Echter, beide worden niet gemedieerd door zowel opvoedstijlen als probleemgedrag. We vonden wel dat ouders vaker hun opvoedstijlen aanpassen aan de demografische samenstelling van de buurt. Bijvoorbeeld, ouders in buurten met hoge etnische heterogeniteit passen vaker beschermende opvoedstijlen toe. Maar we vonden niet dat de opvoedstijlen invloed hebben op het buurteffect, wat conflicteert met de bevinding van onze meta-analyse dat controleren voor opvoedstijlen leidt tot sterkere buurteffecten. Het kan echter zijn dat onze maat voor schoolsucces in hoofdstuk 3 niet het 'echte' schoolsucces meet, omdat het gemeten is als onderwijsniveau wanneer adolescenten nog op de middelbare school zitten, en niet als het

niveau dat ze uiteindelijk daadwerkelijk behaald hebben.

Persoonlijkheid en binding met school

In hoofdstuk 4 hebben we onderzocht of persoonlijkheid en binding met school de relatie tussen de buurt en onderwijsuitkomsten modereren. We nemen de stelling in dat adolescenten met een veerkrachtige persoonlijkheid een zwakker buurteffect ervaren dan overcontrollers en ondercontrollers, omdat veerkrachtigen beter in staat zijn om te gaan met buurtachterstand. Deze stelling werd ondersteund door onze analyse; sterker nog, uit onze analyse blijkt dat de groep veerkrachtige adolescenten geen invloed ondergaan van buurtachterstand op schoolsucces. Ten tweede stelden we dat binding met school mogelijk de negatieve invloed van buurtachterstand modereert. Ook dit werd ondersteund door onze analyse. We vonden dat adolescenten met de hoogste mate van binding met school niet of nauwelijks worden beïnvloed, terwijl adolescenten met de laagste mate van binding met school een sterk negatief effect van buurtachterstand ervaren.

In hoofdstuk 5 gingen we dieper in op de modererende rol van persoonlijkheid door de verschillen tussen autochtone en allochtone adolescenten te analyseren. We onderzochten de invloed van concentraties van immigranten in de buurt op binding met school. Onze resultaten tonen geen effect voor autochtone jongeren. Echter, voor allochtone jongeren vonden we dat het leven in een buurt met matige proporties immigranten een positieve invloed heeft op binding met school in vergelijking met buurten met lage proporties. Deze bevinding ondersteunt onze stelling dat etnische concentraties kunnen leiden tot sterkere etnische sociale netwerken, welke minderheden in staat kunnen stellen elkaar te helpen, en daarmee sociale mobiliteit stimuleren. Als we de modererende rol van persoonlijkheid testen, vinden we, vergelijkbaar met de resultaten van hoofdstuk 4, dat adolescenten met een veerkrachtige persoonlijkheid minder sterk worden beïnvloed door de buurtcontext dan adolescenten met een andere persoonlijkheid.

Omdat schoolsucces invloed heeft op arbeidsmarktkansen, is het waarschijnlijk dat het buurteffect op onderwijs ook een indirect effect op baankansen op een latere leeftijd is. De buurt waarin adolescenten opgroeien heeft daarnaast mogelijk ook een directe invloed op baankansen. In hoofdstuk 6 bekeken we dit door de invloed van blootstelling aan buurtachterstand tijdens de adolescentie op werkloosheid en binding met werk tijdens vroege volwassenheid te analyseren. We bestudeerden ook de modererende rol van persoonlijkheid om de robuustheid van onze bevinding in hoofdstuk 4 en 5 te testen op andere uitkomsten dan onderwijs. We vonden dat de binding met werk en werkloosheid van ondercontrollers en de binding met werk van overcontrollers beïnvloed worden door de buurt, terwijl veerkrachtigen niet worden beïnvloed. Deze bevinding correspondeert met het idee dat veerkrachtigen beter in staat zijn om te gaan met de eisen van de omgeving. Daarnaast benadrukt dit resultaat het belang van persoonlijkheid als modererende factor in de studie naar buurteffecten.

De persoonlijkheid van individuele respondenten beïnvloedt niet alleen de invloed van de buurt op onderwijsuitkomsten, maar ook op werkuitkomsten.

CONCLUSIE EN DISCUSSIE

Hoofdstukken 3 tot en met 6 werpen licht op het hoofddoel van deze dissertatie: onderzoeken hoe buurteffecten op sociale mobiliteit beïnvloed worden door opvoedstijlen, probleemgedrag, persoonlijkheid en binding met school. Het lijkt er op dat de toevoeging van opvoedstijlen en probleemgedrag als mediator geen verandering teweegbrengen in de relatie tussen buurtkenmerken en schoolsucces. Echter, zoals eerder gezegd kan dit komen doordat schoolsucces niet is gemeten als het behaalde diploma aan het einde van de middelbare school. Mogelijkerwijs zou een ander maat voor schoolsucces tot andere conclusies leiden over de mediërende rol van opvoedstijlen en probleemgedrag. Het is mogelijk dat de mediatie alleen gevonden kan worden aan het eind van het schooltraject.

Veelbelovender lijken de modererende effecten van binding met school en persoonlijkheid. Allereerst, een sterkere binding met school lijkt te werken als een moderator tegen de negatieve invloed van de buurt op schoolsucces. En als tweede ervaren adolescenten met een veerkrachtige persoonlijkheid slechts zwakke en in sommige gevallen zelfs geen invloed van de buurt op schoolsucces, binding met school, binding met werk en werkloosheid. Dit contrasteert met de sterkere buurteffecten gevonden voor adolescenten met een niet-veerkrachtige persoonlijkheid. Deze bevindingen ondersteunen ons initiële idee dat de effecten van buurtachterstand gemodereerd worden door persoonlijkheidskenmerken.

Deze bevindingen ondersteunen de gedachte dat niet geobserveerde heterogeniteit in onderzoekspopulaties kan leiden tot instabiele resultaten. We observeerden substantieel verschillende resultaten voor adolescenten met verschillende persoonlijkheidstypen of binding met school. Dit betekend dat individuele factoren met grote voorzorg moeten worden behandeld in studies naar de invloed van buurten, om zo resultaten niet te breed te trekken, en geen foute conclusies te trekken over buurteffecten op jongeren die niet vatbaar zijn voor invloeden van de buurtcontext. Het gat in de literatuur reflecteert waarschijnlijk ook een gat in de dataverzameling; opvoedstijlen zijn vaak aanwezig, maar maten voor persoonlijkheid niet. Toekomstige dataverzameling zou er goed aan doen meer maten toe te voegen over attitudes en persoonlijkheid, om daarmee te kunnen testen wie er wel en wie er niet wordt beïnvloed door de buurt.

Door in hoofdstuk 5 fixed-effects (FE) modellen te gebruiken, hebben we kunnen kijken naar het probleem van selectiebias. We vergeleken FE met OLS regressie modellen en vonden een duidelijk verschil tussen de resultaten. We lieten zien dat wanneer er wordt gecontroleerd voor alle tijdsinvariante, niet geobserveerde kenmerken in

het FE model, voor allochtone jongeren, buurteffecten duidelijker naar boven komen in vergelijking met in OLS modellen. Voor autochtone jongeren lijken buurteffecten te verdwijnen in het FE model. Deze resultaten ondersteunen het idee van selectiebias en door FE modellen toe te passen kunnen we hier deels voor controleren. Echter, hoewel duidelijk superieur aan OLS modellen, kunnen FE modellen niet de selectiebias oplossen die veroorzaakt wordt door tijdsvariante, niet geobserveerde kenmerken, en daarom kan selectiebias nog steeds aanwezig zijn. Desondanks tonen de verschillen tussen FE en OLS modellen het belang aan van het doen van enige moeite om de selectiebias te minimaliseren. Verder moeten FE modellen gecomplementeerd worden door onderzoekspopulaties van adolescenten zonder een veerkrachtige persoonlijkheid of met lage binding met school, om zo een betrouwbaarder buurteffect te kunnen schatten en om het belang van de buurt voor risicogroepen in kaart te kunnen brengen.

Onze resultaten suggereren differentiële ontvankelijkheid voor invloeden van de buurt. Veerkrachtigen en adolescenten met een sterke binding met school zijn minder ontvankelijk voor invloeden van buurtachterstand en de demografische samenstelling van de buurt. Bijvoorbeeld, veerkrachtigen zijn minder ontvankelijk voor het negatieve effect van buurtarmoede in vergelijking met niet-veerkrachtige jongeren, en veerkrachtige allochtone jongeren zijn minder ontvankelijk voor de positieve invloed van het leven in een buurt met een bepaalde concentratie immigranten in vergelijking met niet-veerkrachtige allochtone jongeren. Deze bevindingen komen overeen met de huidige literatuur over persoon-omgeving interacties [voor een review, zie Belsky & Pluess, 2009]. Dit proefschrift voegt daar de buurtcontext aan toe en toont aan dat deze context belangrijk is wanneer het aankomt op de studie van persoon-omgeving interacties.

Voor adolescenten die in achtergestelde buurt wonen betekenen onze bevindingen dat ze niet noodzakelijk voorbestemd zijn voor slechte sociaaleconomische uitkomsten. Persoonlijkheid en binding met school spelen een belangrijke rol in het modereren van buurteffecten. Veerkrachtigere jeugd en jongeren met een sterkere binding met school zijn beter in staat hun eigen weg te bepalen en in het tegengaan van negatieve invloeden uit de omgeving. Risicogroepen zullen echter baat hebben bij onderwijsprogramma's die hen helpen de negatieve invloed van de buurt te bufferen.

REFERENCES

Articles that are included in the meta-analyses of chapter 2 are marked with an asterisk (*).

* Aaronson, D. (1998). Using sibling data to estimate the impact of neighborhoods on children's educational outcomes. *Journal of Human Resources*, 33(4), 915-946.

* Ainsworth, J. W. (2002). Why does it take a village? The mediation of neighborhood effects on educational achievement. *Social Forces*, 81(1), 117-152.

* Ainsworth, J. W. (2010). Does the race of neighborhood role models matter? Collective socialization effects on educational achievement. Urban Education, 45(4), 401-423.

Akers, R. L., Krohn, M. D., Lanza-Kaduce, L. & Radosevich, M. (1979). Social learning and deviant behavior: a specific test of a general theory. American Sociological Review, 44(4), 636-655.

Allison, P. D. (2009). Fixed effects regression models. Thousand Oaks, CA: Sage.

* Andersson, E. & Subramanian, S. V. (2006). Explorations of neighbourhood and educational outcomes for young Swedes. *Urban Studies*, 43(11), 2013-2025.

* Andreias, L., Borawski, E., Schluchter, M., Taylor, H. G., Klein, N. & Hack, M. (2010). Neighborhood influences on the academic achievement of extremely low birth weight children. Journal of Pediatric Psychology, 35(3), 275-283.

Asendorpf, J. B. (2002). Editorial: The puzzle of personality types. European Journal of Personality, 16, 1-5.

Asendorpf, J. B. & van Aken, M. A. (2003). Personality–relationship transaction in adolescence: Core versus surface personality characteristics. Journal of Personality, 71, 629-666.

Asendorpf, J. B., Borkenau, P., Ostendorf, F. & van Aken, M. A. G. (2001). Carving personality description at its joints: Confirmation of three replicable personality prototypes for both children and adults. European Journal of Personality, 15, 169-198.

Åslund, C., Nordquist, N., Comasco, E., Leppert, J., Oreland, L. & Nilsson, K. W. (2011). Maltreatment, MAOA, and delinquency: Sex differences in gene-environment interaction in a large population-based cohort of adolescents. Behavior Genetics, 41, 262-272.

* Åslund, O., Edin, P.-A., Fredriksson, P. & Grönqvist, H. (2011). Peers, neighborhoods, and immigrant student achievement: Evidence from a placement policy. American Economic Journal: Applied Economics, 3(2), 67-95.

Astone, N. M. & McLanahan, S. S. (1991). Family structure, parental practices and high school completion. American Sociological Review, 56(3), 309-320.

Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51(6), 1173-1182.

Bauman, Z. (1993). Postmodern ethics. Cambridge, MA: Blackwell.

Belsky, J. & Pluess, M. (2009). Beyond diathesis stress: Differential susceptibility to environmental influences. Psychological Bulletin, 135(6), 885-908.

* Benson, J. & Borman, G. D. (2010). Family, neighborhood, and school settings across seasons: When do socioeconomic context and racial composition matter for the reading achievement growth of young children? Teachers College Record, 112(5), 1338-1390.

Bianchi, S. M., Robinson, J. P. & Milkie, M. A. (2006). Changing rhythms of American family life. New York: Russell Sage Foundation.

Blasius, J., Friedrichs, J. & Galster, G. (2009). Introduction: Quantifying neighbourhood effects. In: Blasius, J., Friedrichs, J. & Galster, G. [Eds.], Quantifying neighbourhood effects. London & New York: Routledge, 1-10.

Block, J. H. & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In: Collins, W. A. [Ed.], Development of cognition, affect, and social relations. Hillsdale: Lawrence Erlbaum Associates, 39-101.

Borenstein, M., Hedges, L. V., Higgins, J. P. T. & Rothstein, H. R. (2009). Introduction to meta-analysis. West Sussex: John Wiley & Sons.

Bourdieu, P. (1986). The forms of capital. In: Richardson, J. E. [Ed.], Handbook of theory of research for the sociology of education. Westport, CT: Greenword Press, 241-258.

Bourdieu, P. & Passeron, J.-C. ([1977] 1990). Reproduction in education, society and culture. London: Sage.

* Bowen, N. K. & Bowen, G. L. (1999). Effects of crime and violence in neighborhoods and schools on the school behavior and performance of adolescents. *Journal of Adolescent Research*, 14(3), 319-342.

* Boyle, M. H., Georgiades, K., Racine, Y. & Mustard, C. (2007). Neighborhood and family influences on educational attainment: Results from the Ontario Child Health Study Follow-Up 2001. *Child Development*, 78(1), 168-189.

* Bramley, G. & Karley, N. K. (2007). Homeownership, poverty and educational achievement: School effects as neighbourhood effects. Housing Studies, 22(5), 693-721.

Branje, S. J., Hale III, W. W., Frijns, T. & Meeus, W. H. (2010). Longitudinal associations between perceived parent-child relationship quality and depressive symptoms in adolescence. Journal of Abnormal Child Psychology, 38, 751-763.

Branje, S. J., van Lieshout, C. F. & Gerris, J. R. (2007). Big Five personality development in adolescence and adulthood. European Journal of Personality, 21, 45-62.

* Brännström, L. (2008). Making their mark: the effects of neighbourhood and upper secondary school on educational achievement. European Sociological Review, 24(4), 463-478.

Brattbakk, I. & Wessel, T. (2013). Long-term neighbourhood effects on education, income and employment among adolescents in Oslo. Urban Studies, 50(2), 391-406.

Bronfenbrenner, U. (1979). The ecology of human development. Experiments by nature and design. Cambridge, MA : Harvard University Press.

* Brooks-Gunn, J., Duncan, G. J., Klebanov, P. K. & Sealand, N. (1993). Do neighborhoods influence child and adolescent development? American Journal of Sociology, 99(2), 353-395.

Buck, N. (2001). Identifying neighborhood effects on social exclusion. Urban Studies, 38(12), 2251–2275.

Burt, R. S. (2001). Structural holes versus network closure as social capital. In: Lin, N., Cook, K. & Burt, R. S. [Eds.], Social capital: Theory and researc. New York: Aldine de Gruyter, 31-56.

* Bygren, M. & Szulkin, R. (2010). Ethnic environment during childhood and the educational attainment of immigrant children in Sweden. *Social Forces*, 88(3), 1305-1329.

* Byrd, C. M. & Chavous, T. M. (2009). Racial identity and academic achievement in the neighborhood context: A multilevel analysis. *Journal of Youth and Adolescence*, 38(4), 544-559.

* Cardak, B. A. & McDonald, J. T. (2004). Neighbourhood effects, preference heterogeneity and immigrant educational attainment. Applied Economics, 36(6), 559-572.

Carroll, A., Houghton, S., Wood, R., Unsworth, K., Hattie, J., Gordon, L. & Bower, J. (2009). Self-efficacy and academic achievement in Australian high school students: The mediating effects of academic aspirations and delinquency. Journal of Adolescence, 32, 797-817.

Caspi, A. (1998). Personality development across the life course. In: Damon, W. & Eisenberg, N. [Eds.], Handbook of child psychology: Vol. 3. Social, emotional, and personality development. New York, NY: Wiley, 311-388.

Caspi, A., Moffitt, T. E., Thornton, A., Freedman, D., Amell, J. W. & Harrington, H., et al. (1996). The life history calendar: A research and clinical assessment method for collecting retrospective event-history data. International Journal of Methods in Psychiatric Research, 6, 101–114.

Caspi, A., Roberts, B. W. & Shiner, R. L. (2005). Personality development: Stability and change. Annual Review of Psychology, 56, 453-484.

* Catsambis, S. & Beveridge, A. A. (2001). Does neighborhood matter? Family, neighborhood, and school influences on eighth-grade mathematics achievement. Sociological Focus, 34(4), 435-457.

CBS. (2006). Kerncijfers postcodegebieden, 2004 [Key figures for postcode areas, 2004]. The Hague: Statistics Netherlands.

CBS. (2011). Kerncijfers postcodegebieden, 2008-2010 [Key figures for postcode areas, 2008-2010]. The Hague: Statistics Netherlands.

CBS. (2012). Startkwalificatie (onderwijs) [Basic qualification (education)]. From Statistics Netherlands Website, http://www.cbs.nl/. Accessed: 9 October 2012.

CBS StatLine. (2010) Gemiddeld inkomen; particuliere huishoudens naar diverse kenmerken, retrieved May 24, 2011 from Statistics Netherlands Website, http://statline.cbs.nl/.

* Charles, C. Z., Dinwiddie, G. & Massey, D. S. (2004). The continuing consequences of segregation: Family stress and college academic performance. *Social Science Quarterly*, 85(5), 1353-1373.

* Chase-Lansdale, P. L. & Gordon, R. A. (1996). Economic hardship and the development of five- and six-year-olds: Neighborhood and regional perspectives. Child Development, 67, 3338-3367.

Cicchetti, D. & Rogosch, F. A. (2012). Gene X Environment interaction and resilience: Effects of child maltreatment and serotonin, corticotropin releasing hormone, dopamine, and oxytocin genes. Development and Psychopathology, 24, 411-427.

Clark, R. M. (1983) Family life and school achievement. Why poor black children succeed or fail. Chicago and London: University of Chicago Press.

Coleman, J. S. (1988). Social capital in the creation of human capital. American Journal of Sociology, Supplement, 94, S95-S120.

Conger, R. D., Ge, X., Elder, G. H., Lorenz, F. O. & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. Child Development, 65, 541-561.

* Connell, J. P., Halpern-Felsher, B. L., Clifford, E., Crichlow, W. & Usinger, P. (1995). Hanging in there: Behavioral, psychological, and contextual factors affecting whether African American adolescents stay in high school. *Journal of Adolescent Research*, 10(1), 41-63.

* Connell, J. P., Spencer, M. B. & Aber, J. L. (1994). Educational risk and resilience in African-American youth: context, self, action, and outcomes in school. *Child development*, 65, 493-506.

* Coombes, M. & Raybould, S. (1997). Modelling the influence of individual and spatial factors underlying variations in the levels of secondary school examination results. Environment and Planning A, 29(4), 641-658.

Coulton, C. J., Korbin, J. E., Su, M. & Chow, J. (1995). Community level factors and child maltreatment rates. Child Development, 66, 1262-1276.

* Crane, J. (1999). The epidemic theory of ghettos and neighborhood effects on dropping out and teenage childbearing. American Journal of Sociology, 96(5), 1226-1259.

Crocetti, E., Rubini, M. & Meeus, W. H. J. (2008). Capturing the dynamics of identity formation in various ethnic groups: Development and validation of a three-dimensional model. Journal of Adolescence, 31, 207–222.

Crompton, R. (2006). Class and family. Sociological Review, 54(4), 658-677.

* Crowder, K. & South, S. J. (2003). Neighborhood distress and school dropout: The variable significance of community context. *Social Science Research*, 32(4), 659-698.

* Crowder, K. & South, S. J. (2011). Spatial and temporal dimensions of neighborhood effects on high school graduation. *Social Science Research*, 40(1), 87-106.

* Crowder, K. & Teachman, J. (2004). Do residential conditions explain the relationship between living arrangements and adolescent behavior? Journal of Marriage and Family, 66(3), 721-738.

Dagevos, J. (2009). Ruimtelijke concentratie van niet-westerse migranten [Spatial concentration of non-western migrants]. The Hague: The Netherlands Institute for Social Research.

* Datcher, L. (1982). Effects of community and family background on achievement. *Review of Economics and Statistics*, 64(1), 32-41.

* Dearing, E. (2004). The developmental implications of restrictive and supportive parenting across neighborhoods and ethnicities: Exceptions are the rule. Journal of Applied Developmental Psychology, 25(5), 555-575.

Denissen, J. A., Asendorpf, J. B. & van Aken, M. A. G. (2008). Childhood personality predicts long-term trajectories of shyness and aggressiveness in the context of demographic transitions in emerging adulthood. Journal of Personality, 76, 68-99.

Dietz, R. D. (2002). The estimation of neighborhood effects in the social sciences: An interdisciplinary approach. Social Science Research, 31, 539-575.

Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E. & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. Psychological Science, 16(4), 328-335.

Downey, D. B., Ainsworth, J. W. & Qian, Z. (2009). Rethinking the attitude-achievement paradox among blacks. Sociology of Education, 82, 1–19.

Downey, G. & Coyne, J. C. (1990). Children of depressed parents: An integrative review. Psychological Bulletin, 108(1), 50-76.

Dubas, J. S., Gerris, J. R., Janssens, J. M. & Vermulst, A. A. (2002). Personality types of adolescents: concurrent correlates, antecedents, and type X parenting interactions. Journal of Adolescence, 25, 79-92.

* Duncan, G. J. (1994). Families and neighbors as sources of disadvantage in the schooling decisions of white and black adolescents. American Journal of Education, 103(1), 20-53.

Duncan, G. J., Brooks-Gunn, J. & Klebanov, P. K. (1994). Economic depivation and early childhood development. Child Development, 65(2), 296-318.

Duncan, G. J., Connell, J. P. & Klebanov, P. K. (1997). Conceptual and methodological issues in estimating causal effects of neighborhoods and family conditions on individual development. In: Brooks-Gunn, J., Duncan, G. J. & Aber, J. L. [Eds.], Neighborhood poverty, vol. I. Context and consequences for children. New York: Russell Sage Foundation, 219-250.

Duncan, G. J. & Raudenbush, S. W. (1999). Assessing the effects of context in studies of child and youth development. Educational Psychologist, 34(1), 29-41.

Durlauf, S. N. (2004). Neighbourhood effects. In: Henderson, J. V. & Thisse, J. F. [Eds.], Handbook of regional and urban economics Volume 4, Cities and Geography. Amsterdam: Elsevier.

* Drukker, M., Feron, F. J. M., Mengelers, R. & Van Os, J. (2009). Neighborhood socioeconomic and social factors and school achievement in boys and girls. *Journal of Early Adolescence*, 29(2), 285-306.

* Dupere, V., Leventhal, T., Crosnoe, R. & Dion, E. (2010). Understanding the positive role of neighborhood socioeconomic advantage in achievement: The contribution of the home, child care, and school environments. *Developmental Psychology*, 46(5), 1227-1244.

* Eamon, M. K. (2005). Social-demographic, school, neighborhood, and parenting influences on the academic achievement of latino young adolescents. Journal of Youth and Adolescence, 34(2), 163-174.

Edens, J. F., Cavell, T. A. & Hughes, J. N. (1999). The self-systems of aggressive children: a cluster-analytic investigation. Journal of Child Psychology and Psychiatry, 40, 441-453.

Elffers, L. & Oort, F. J. (2013). Great expectations: students' educational attitudes upon the transition to post-secondary vocational education. Social Psychology of Education, 16, 1-22.

Ellen, I. G. & Turner, M. A. (1997). Does neighbourhood matter? Assessing recent evidence. Housing Policy Debate, 8(4), 833–866.

* Ensminger, M. E., Lamkim, R. P. & Jacobson, N. (1996). School leaving: A longitudinal perspective including neighborhood effects. Child Development, 67, 2400-2416.

Entwisle, D. R., Alexander, K. L. & Olson, L. S. (1994). The gender gap in math: Its possible origins in neighborhood effects. American Sociological Review, 59(6), 822-838.

Erikson, E. H. (1972). Childhood and society [Repr. ed. ed.]. Harmondsworth, Middlesex: Penguin Books.

Fauth, R. C., Leventhal, T. & Brooks-Gunn, J. (2007). Welcome to the neighborhood? Long-term impacts of moving to low-poverty neighborhoods on poor children's and adolescents' outcomes. Journal of Research on Adolescence, 17(2), 249-284.

* Flores, R. J. O. (2002). An examination of neighborhood effects on patterns of high school attrition among Puerto Rican youth in the New York Metropolitan Area. *Journal of Hispanic Higher Education*, 1(1), 69-87.

* Flouri, E. & Ereky-Stevens, K. (2008). Urban neighbourhood quality and school leaving age: Gender differences and some hypotheses. *Oxford Review of Education*, 34(2), 203-216.

* Foster, E. M. & McLanahan, S. (1996). An illustration of the use of instrumental variables: Do neighborhood conditions affect a young person's chance of finishing high school? Psychological Methods, 1(3), 249-260.

Friedrichs, J. (1998). Do poor neighborhoods make their residents poorer? Context effects of poverty neighborhoods on their residents. In: Andreß, H.-J. [Ed.], Empirical Poverty Research in a Comparative Perspective. Aldershot: Ashgate, 77-99.

Friedrichs, J. & Blasius, J. (2005). Social norms in distressed neighbourhoods: Testing the Wilson hypothesis. In: Friedrichs, J., Galster, G. & Musterd, S. [Eds.], Life in poverty neighbourhoods. London & New York: Routledge, 11-30.

Furman, W. & Buhrmester, D. (1985). Children's perceptions of the personal relationship in their social networks. Developmental Psychology, 21(6), 1016-1024.

Furstenberg, F. F., Cook, T. D., Eccles, J., Elder Jr, G. H.. & Sameroff, A. (1999). Managing to make it. Urban families and adolescent success. Chicago and London: University of Chicago Press.

Galster, G. (2001). On the nature of neighbourhood. Urban Studies, 38(12), 2111-2124.

Galster, G. (2002). An economic efficiency analysis of deconcentrating poverty populations. Journal of Housing Economics, 11(4), 303-329.

Galster, G. (2007). Should policy makers strive for neighbourhood social mix? An analysis of the Western European evidence base. Housing Studies, 22(4), 523-545.

Galster, G. C. (2008). Quantifying the effect of neighbourhood on individuals: Challenges, alternative approaches, and promising directions. Schmollers Jahrbuch, 128, 1-42.

Galster, G. C. (2012). The mechanism(s) of neighbourhood effects: Theory, evidence, and policy implications. In: Van Ham, M., Manley, D., Bailey, N., Simpson, L. & Maclennan, D. [Eds.], Neighbourhood effects research: New perspectives. Dordrecht: Springer, 23-56.

* Galster, G., Marcotte, D. E., Mandell, M., Wolman, H. & Augustine, N. (2007). The influence of neighborhood poverty during childhood on fertility, education, and earnings outcomes. Housing Studies, 22(5), 723-751.

Galster, G. C. & Santiago, A. M. (2006). What's the 'hood got to do with it? Parental perceptions about how neighborhood mechanisms affects their children. Journal of Urban Affairs, 28(3), 201-226.

* Garner, C. L. & Raudenbush, S.W. (1991). Neighborhood effects on educational attainment: A multilevel analysis. Sociology of Education, 64(4), 251-262.

Ge, X., Brody, G. H., Conger, R. D., Simons, R. L. & Murry, V. M. (2002). Contextual amplification of pubertal transition effects on deviant peer affiliation and externalizing behavior among African American children. Developmental Psychology, 38(1), 42-54.

Germeijs, V. & Verschueren, K. (2007). High school students' career decision-making process: Consequences for choice implementation in higher education. Journal of Vocational Behavior, 70, 223-241.

Gerris, J. R. M., Houtmans, T. M. J. M., Kwaaitaal-Roosen, E. M. G., Schipper, J. C., Vermulst, A. A. & Janssens, J. M. A. M. (1998). Parents, adolescents and young adults in Dutch families: A longitudinal study. Nijmegen: Institute of Familiy Studies University of Nijmegen.

* Georgiades, K., Boyle, M. H. & Duku, E. (2007). Contextual influences on children's mental health and school performance: The moderating effects of family immigrant status. Child Development, 78(5), 1572-1591.

Gibson, C. L. (2012). An investigation of neighborhood disadvantage, low self-control, and violent victimization among youth. Youth Violence and Juvenile Justice, 10(1), 41-63.

Gijsberts, M., Huijnk, W. & Dagevos, J. (2012). Jaarrapport integratie 2011 [Integration report 2011]. The Hague: The Netherlands Institute for Social Research.

* Ginther, D., Haveman, R. & Wolfe, B. (2000). Neighborhood attributes as determinants of children's outcomes: How robust are the relationships? Journal of Human Resources, 35(4), 603-642.

Goldberg, L. R. (1992). The development of markers for the big-five factor structure. Psychological Assessment, 4, 26-42.

* Goldsmith, P. R. (2009). Schools or neighborhoods or both? Race and ethnic segregation and educational attainment. *Social Forces*, 87(4), 1913-1942.

* Gonzales, N. A., Cauce, A.M., Friedman, R.J. & Mason, C.A. (1996). Family, peer, and neighborhood influences on academic achievement among African-American adolescents: One-year prospective effects. *American Journal of Community Psychology*, 24(3), 365-387.

* Goux, D. & Maurin, E. (2005). Composition sociale du voisinage et échec scolaire. Une évaluation sur données françaises [The effects of neighbourhoods on early performance at school in France]. *Revue Economique*, 56(2), 349-362.

* Goux, D. & Maurin, E. (2007). Close neighbours matter: Neighbourhood effects on early performance at school. *Economic Journal*, 117(523), 1193-1215.

* Greenman, E., Bodovski, K. & Reed, K. (2011). Neighborhood characteristics, parental practices and children's math achievement in elementary school. Social Science Research, 40(5), 1434-1444.

Grusky, D. B. (1983). Industrialization and the status attainment process: The thesis of industrialism reconsidered. American Sociological Review, 48(4), 494-506.

Gutierrez, R. G. (2002). Parametric frailty and shared frailty survival models. The Stata Journal, 2(1), 22-44.

* Han, W.-J. (2008). Adolescents of New York City immigrant families. Children and Youth Services Review, 30(10), 1144-1158.

Harbord, R. M. & Higgins, J. P. T. (2008). Meta-regression in Stata. The Stata Journal, 8(4), 493-519.

* Harding, D. J. (2003). Counterfactual models of neighborhood effects: The effect of neighborhood poverty on dropping out and teenage pregnancy. *American Journal of Sociology*, 109(3), 676-719.

* Harding, D. J. (2011). Rethinking the cultural context of schooling decisions in disadvantaged neighborhoods: From deviant subculture to cultural heterogeneity. Sociology of Education, 84(4), 322-339.

Hart, D., Hoffman, V., Edelstein, W. & Keller, M. (1997). The relation of childhood personality types to adolescent behavior and development: A longitudinal study of Icelandic children. Developmental Psychology, 33(2), 195–205.

Haynie, D. L. (2001). Delinquent peers revisited: does network structure matter? American Journal of Sociology, 106(4), 1013-1057.

* Henry, C. S., Merten, M. J., Plunkett, S. W. & Sands, T. (2008). Neighborhood, parenting, and adolescent factors and academic achievement in latino adolescents from immigrant families. Family Relations, 57(5), 579-590.

Henry, K. L., Cavanagh, T. M. & Oetting, E. R. (2011). Perceived parental investment in school as a mediator of the relationship between socio-economic indicators and educational outcomes in rural America. Journal of Youth and Adolescence, 40(9), 1164-1177.

* Herman, M. R. (2009). The black-white-other achievement gap: testing theories of academic performance among multiracial and monoracial adolescents. Sociology of Education, 82(1), 20-46.

Hill, R. (1949). Families under stress. New York: Harper and Row.

Hofstede, G. & McCrae, R. R. (2004). Personality and culture revisited: linking traits and dimensions of culture. Cross-Cultural Research, 38(1), 52-88.

Hogan, J. & Holland, B. (2003). Using theory to evaluate personality and job-performance relations: a socioanalytic perspective. Journal of Applied Psychology, 88, 100.

Honneth, A. (1995). The struggle for recognition. Cambridge, MA: MIT Press.

Hox, J. (2002). Multilevel analysis. Mahwah, NJ: Lawrence Erlbaum Associates.

* Ioannides, Y. M. (2003). Empirical nonlinearities and neighbourhood effects in the intergenerational transmission of human capital. Applied Economics Letters, 10(9), 535-539.

Jarrett, R. L. (1997). African American family and parenting strategies in impoverished neighborhoods. Qualitative Sociology, 20(2), 275-288.

Jencks, C. & Mayer, S. E. (1990). The social consequences of growing up in a poor neighbourhood. In: Lynn, L. E. & McGeary, M. G. H. [Eds.], Inner-city poverty in the United States. Washington, D.C.: National Academy Press, 111-186.

Johnson Jr., O. (2010). Assessing neighborhood racial segregation and macroeconomic effects in the education of African Americans. Review of Educational Research, 80(4), 527-575.

Jones, S. & Lynam, D. R. (2009). In the eye of the impulsive beholder: The interaction between impulsivity and perceived informal social control on offending. Criminal Justice and Behavior, 36, 307-321.

* Joo, M. (2010). Long-term effects of Head Start on academic and school outcomes of children in persistent poverty: Girls vs. boys. *Children and Youth Services Review*, 32(6), 807-814.

* Kauppinen, T. M. (2007). Neighborhood effects in a European city: Secondary education of young people in Helsinki. *Social Science Research*, 36(1), 421-444.

* Kauppinen, T. M. (2008). Schools as mediators of neighbourhood effects on choice between vocational and academic tracks of secondary education in Helsinki. *European Sociological Review*, 24(3), 379-391.

Kearns, A. & Parkinson, M. (2001). The significance of neighbourhood. Urban Studies, 38(12), 2103-2110.

Keij, I. (2000). Standaarddefinitie allochtonen [Standard definition immigrants]. Index, 10, 24-25.

Kerr, M, Stattin, H. & Burk, W. J. (2010). A reinterpretation of parental monitoring in longitudinal perspective. Journal of Research on Adolescence, 20(1), 39-64.

Kifle, T. (2013). Relative income and job satisfaction: Evidence from Australia. Applied Research in Quality of Life, 8, 125-143.

Kim, J. E., Hetherington, E. M. & Reiss, D. (1999). Associations among family relationships, antisocial peers, and adolescents' externalizing behaviors: Gender and family type differences. Child Development, 70(5), 1209-1230.

Klebanov, P. K., Brooks-Gunn, J. & Duncan, G. J. (1994). Does neighborhood and family poverty affect mothers' parenting, mental health, and social support? Journal of Marriage and Family, 56(2), 441-455.

Kleinhans, R. (2004). Social implications of housing diversification in urban renewal: A review of recent literature. Journal of Housing and the Built Environment, 19, 367-390.

Klimstra, T. A., Hale III, W. W., Raaijmakers, Q. A. W., Branje, S. J. T. & Meeus, W. H. J. (2010). A developmental typology of adolescent personality. European Journal of Personality, 24, 309-323.

Klimstra, T. A., Luyckx, K., Germeijs, V., Meeus, W. H. J. & Goossens, L. (2012). Personality traits and educational identity formation in late adolescents: Longitudinal associations and academic progress. Journal of Youth and Adolescence, 41, 346-361.

Kohen, D. E., Leventhal, T., Dahinten, V. S. & McIntosh, C. N. (2008). Neighborhood disadvantage: Pathways of effects for young children. Child Development, 79(1), 156-169.

* Kowaleski-Jones, L., Dunifon, R. & Ream, G. (2006). Community contributions to scholastic success. Journal of Community Psychology, 34(3), 343-362.

Krull, J. L. & MacKinnon, D. P. (2001). Multilevel modeling of individual and group level mediated effects. Multivariate Behavioral Research, 36(2), 249-277.

Kulka, R. A., Kahle, L. R. & Klingel, D. M. (1982). Aggression, deviance, and personality adaptation as antecedents and consequences of alienation and involvement in high school. Journal of Youth and Adolescence, 11(3), 261-279.

Kwan, M.-P. (2012). The uncertain geographic context problem. Annals of the Association of American Geographers, 102, 958-968.

Lareau, A. (2003). Unequal childhoods. Class, race, and family life. Berkeley: University of California Press.

* Lauen, D. L. (2009). To choose or not to choose: High school choice and graduation in chicago. Educational Evaluation and Policy Analysis, 31(3), 179-199.

Laursen, B. (1993). The perceived impact of conflict on adolescent relationships. Merrill-Palmer Quarterly, 39, 535–550.

* Leckie, G. (2009). The complexity of school and neighbourhood effects and movements of pupils on school differences in models of educational achievement. Journal of the Royal Statistical Society. Series A: Statistics in Society, 172(3), 537-554.

Leventhal, T. & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. Psychological Bulletin, 126(2), 309-337.

LeVine, R. A. & Campbell, D. T. (1972). Ethnocentrism: theories of conflict, ethnic attitudes and group behaviour. New York: John Wiley.

* Lindsay, C. A. (2011). All middle-class families are not created equal: Explaining the contexts that black and white families face and the implications for adolescent achievement. *Social Science Quarterly*, 20(3), 201-209.

* Lloyd, J. E. V., Li, L. & Hertzman, C. (2010). Early experiences matter: Lasting effect of concentrated disadvantage on children's language and cognitive outcomes. Health and Place, 16(2), 371-380.

Loeber, R. & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. Annual Review of Psychology, 48, 371-410.

* López Turley, R. N. (2003). When do neighborhoods matter? The role of race and neighborhood peers. Social Science Research, 32, 61-79.

Luyckx, K., Goossens, L., Soenens, B. & Beyers, W. (2006). Unpacking commitment and exploration: Preliminary validation of an integrative model of late adolescent identity formation. Journal of Adolescence, 29, 361-378.

Lynam, D. R., Caspi, A., Moffit, T. E., Wikström, P.-O., Loeber, R. & Novak, S. (2000). The interaction between impulsivity and neighborhood context on offending: The effects of impulsivity are stronger in poorer neighborhoods. Journal of Abnormal Psychology, 109(4), 563-574.

Maccoby, E. E. & Martin, J. A. (1983). Socialization in the context of the family: parent-child interaction. In: Mussen, P. H. [Ed.], Handbook of child psychology. Volume IV: Socialization, personality, and social development 4th edition. New York: John Wiley & Sons, 1-101.

MacLeod, J. (1987). Ain't no makin' it. Boulder, CO: Westview Press.

* Madyun, N. & Lee, M. (2008). Community influences on E/BD student achievement. Education and Urban Society, 40(3), 307-328.

Magnusson, D. (1998). The logic and implications of a person approach. In: Cairns, R. B., Bergman, L. R. & Kagan, J. [Eds.], The individual as a focus in developmental research. New York: Sage, 33-64.

Manley, D. & van Ham, M. (2012). Neighbourhood effects, housing tenure and individual employment outcomes. In: van Ham, M., Manley, D., Bailey, N., Simpson, L. & Maclennan, D. [Eds.], Neighbourhood effects research: New perspectives. Dordrecht: Springer, 147-174.

Marcia, J. E. (1966). Development and validation of ego-identity status. Journal of Personality and Social Psychology, 3, 551–558.

Martinovic, B., van Tubergen, F. & Maas, I. (2009). Dynamics of interethnic contact: A panel study of immigrants in the Netherlands. European Sociological Review, 25(3), 303-18.

McCluskey, C. P., Krohn, M.D., Lizotte, A.J. & Rodriguez, M.L. (2002). Early substance use and school achievement: An examination of Latino, White, and African youth. Journal of Drug Issues, 32(3), 921-943.

McCrae, R. R. & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. Journal of Personality and Social Psychology, 52, 81-90.

* McCulloch, A. and Joshi, H. E. (2001). Neighbourhood and family influences on the cognitive ability of children in the British National Child Development Study. Social Science and Medicine, 53(5), 579-591.

McLanahan, S. (1985). Family structure and the reproduction of poverty. American Journal of Sociology, 90(4), 873-901.

McLanahan, S. (2004). Diverging destinies: How children are faring under the second demographic transition. Demography, 41(4), 607-627.

McLeod, J. D., Kruttschnitt, C. & Dornfeld, M. (1994). Does parenting explain the effects of structural conditions on children's antisocial behavior? A comparison of blacks and whites. Social Forces, 73(2), 575-604.

McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. American Psychologist, 53(2), 182-204.

McNeal Jr., R. B. (1999). Parental involvement as social capital: Differential effectiveness on science achievement. Social Forces, 78(1), 117-144.

* McWayne, C. M., McDermott, P. A., Fantuzzo, J. W. & Culhane, D. P. (2007). Employing community data to investigate social and structural dimensions of urban neighborhoods: An early childhood education example. American Journal of Community Psychology, 39, 47-60.

Meeus, W. (2011). The study of adolescent identity formation 2000-2010: A review of longitudinal research. Journal of Research on Adolescence, 21(1), 75-94.

Meeus, W., Oosterwegen, A. & Vollebergh, W. (2002). Parental and peer attachment and identity development in adolescence. Journal of Adolescence, 25, 93-106.

Meeus, W. H. J., Akse, J., Branje, S. J. T., Ter Bogt, T. F. M., Crommelin, P. M., Delsing, M. J. M. H., et al. (2010). Codebook of the research project CONflict And Management Of Relationships [CONAMORE]. Unpublished manuscript, Utrecht University, the Netherlands, 2010.

Meeus, W., van de Schoot, R., Klimstra, T. & Branje, S. (2011). Personality types in adolescence: Change and stability and links with adjustment and relationships: A five-wave longitudinal study. Developmental Psychology, 47, 1181-1195.

Meier, M. H, Slutske, W. S., Arndt, S. & Cadoret, R. J. (2008). Impulsive and callous traits are more strongly associated with delinquent behavior in higher risk neighborhoods among boys and girls. Journal of Abnormal Psychology, 117(2), 377-385.

Mervielde, I. & Asendorpf, J. B. (2000). Variable-centered and person-centered approaches to childhood personality. In: Hampson, S. [Ed.], Advances in personality psychology. London: Routledge, 37-76.

* Milam, A. J., Furr-Holden, C. D. M. & Leaf, P. J. (2010). Perceived school and neighborhood safety, neighborhood violence and academic achievement in urban school children. *Urban Review*, 42(5), 458-467.

* Mohanty, L. L. & Raut, L. K. (2009). Home ownership and school outcomes of children: Evidence from the PSID child development supplement. American Journal of Economics and Sociology, 68(2), 465-489.

Mollenhorst, G., Völker, B. & Flap, H. (2008). Social contexts and personal relationships: The effect of meeting opportunities on similarity for relationships of different strength. Social Networks, 30, 60-68.

* Mollenkopf, J. & Champeny, A. (2009). The neighbourhood context for second-generation education and labour market outcomes in New York. Journal of Ethnic and Migration Studies, 35(7), 1181-1199.

Morales, J. R. & Guerra, N. G. (2006). Effects of multiple context and cumulative stress on urban children's adjustment in elementary school. Child Development, 77, 907-923.

Morenoff, J. D., Sampson, R. J. & Raudenbush, S. W. (2001). Neighbourhood inequality, collective efficacy, and the spatial dynamics of urban violence. Criminology, 39(3), 517-559.

Musterd, S. (2002). Response: mixed housing policy: a European [Dutch] perspective. Housing Studies, 17, 139-143.

Musterd, S. (2005). Social and ethnic segregation in Europe: Levels, causes, and effects. Journal of Urban Affairs, 27(3), 331-348.

Musterd, S., Galster, G. & Andersson, R. (2012). Temporal dimensions and measurement of neighbourhood effects. Environment and Planning A, 44, 605-627.

Nagin, D. S. (2005). Group-based modeling of development. Cambridge, MA: Harvard University Press.

Nederhof, E., Belsky, J., Ormel, J. & Oldehinkel, A. J. (2012). Effects of divorce on Dutch boys' and girls' externalizing behavior in Gene × Environment perspective: Diathesis stress or differential susceptibility in the Dutch Tracking Adolescents' Individual Lives Survey study? Development and Psychopathology, 24, 929-939.

Nieuwenhuis, J., & Hooimeijer, P. (2013). The association between neighbourhoods and educational achievement, a systematic review and meta-analysis. Unpublished manuscript, Utrecht University, Utrecht.

Nieuwenhuis, J., Hooimeijer, P., Van Dorsselaer, S. & Vollebergh, W. (2013a). Neighbourhood effects on school achievement: the mediating effect of parenting and problematic behaviour? Environment and Planning A, 45(9), 2135-2153.

Nieuwenhuis, J., Hooimeijer, P. & Meeus, W. (2013b). Neighbourhood effects on educational attainment of adolescents, buffered by personality and educational commitment. Unpublished manuscript, Utrecht University, Utrecht.

Nieuwenhuis, J., Hooimeijer, P., van Ham, M. & Meeus, W. (2013c). Neighbourhood effects on migrant youth's educational commitments, an enquiry into personality differences. IZA Discussion Paper, 7510 (www.iza.org).

* Nikulina, V., Widom, C. S. & Czaja, S. (2010). The role of childhood neglect and childhood poverty in predicting mental health, academic achievement and crime in adulthood. American Journal of Community Psychology, 48, 309-321.

Newcomb, M. D. & Bentler, P. M. (1988). Consequences of adolescent drug use. Newbury Park: Sage.

Oberwittler, D. (2007). The effects of neighbourhood poverty on adolescent problem behaviours: A multi-level analysis differentiated by gender and ethnicity. Housing Studies, 22(5), 781-803.

Oberwittler, D. & Wikström, P.-O. H. (2009). Why small is better: Advancing the study of the role of behavioral contexts in crime causation. In: Weisburd, W. B. & Bruinsma, G. [Eds.], Putting crime in its place. New York, NY: Springer, 33-58.

O'Connor, B. P. & Dvorak, T. (2001). Conditional associations between parental behavior and adolescent problems: A search for personality–environment interactions. Journal of Research in Personality, 35, 1-26.

* Overman, H. G. (2002). Neighbourhood effects in large and small neighbourhoods. Urban Studies, 39(1), 117-130.

Owens, A. (2010). Neighborhoods and schools as competing and reinforcing contexts for educational attainment. Sociology of Education, 83(4), 287-311.

Pásztor, A. (2010). 'Go, go on and go higher an' higher'. Second-generation Turks' understanding of the role of education and their struggle through the Dutch school system. British Journal of Sociology of Education, 31(1), 59-70.

* Patacchini, E. & Zenou, Y. (2011). Neighborhood effects and parental involvement in the intergenerational transmission of education. *Journal of Regional Science*, 51(5), 987-1013.

* Pattavina, A. (1999). The influence of community violence on child development in an urban setting. Research in Politics and Society, 7, 163-182.

Pinkster, F. M. & Fortuijn, J. D. (2009). Watch out for the neighborhood trap! A case study on parental perceptions of and strategies to counter risks for children in a disadvantaged neighborhood. Children's Geographies, 7(3), 323-337.

* Pong, S. & Hao, L. (2007). Neighborhood and school factors in the school performance of immigrants' children. International Migration Review, 41(1), 206-241.

Portes, A. & MacLeod, D. (1996). Educational progress of children of immigrants: The roles of class, ethnicity, and school context. Sociology of Education, 69(4), 255-275.

Portes, A. & MacLeod, D. (1999). Educating the second generation: determinants of academic achievement among children of immigrants in the United States. Journal of Ethnic and Migration Studies, 25(3), 373-396.

Putnam, R. D. (2000). Bowling alone. New York: Simon & Schuster.

Putnam, R. D. (2007). E pluribus unum: Diversity and community in the twenty-first century. The 2006 Johan Skytte Prize Lecture. Scandinavian Political Studies, 30(2), 137-174.

Quercia, R. G. & Galster, G. C. (2000). Threshold effects and neighbourhood change. Journal of Planning Education and Research, 20, 146-162.

* Rephann, T. J. (2002). The importance of geographical attributes in the decision to attend college. Socio-Economic Planning Sciences, 36(4), 291-307.

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R. & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. Psychological Bulletin, 130(2), 261–288.

Robins, R. W., John, O. P., Caspi, A., Moffitt, T. E. & Stouthamer-Loeber, M. (1996). Resilient, overcontrolled, and undercontrolled boys: Three replicable personality types. Journal of Personality and Social Psychology, 70, 157-171.

* Roos, L. L., Hiebert, B., Manivong, P., Edgerton, J., Walld, R., MacWilliam, L. & De Rocquigny, J. (2011). What is most important: Social factors, health selection, and adolescent educational achievement. *Social Indicators Research*, 92(3), 761-781.

* Saatcioglu, A. (2010). Disentangling school-and student-level effects of desegregation and resegregation on the dropout problem in urban high schools: Evidence from the cleveland municipal school district, 1977-1998. Teachers College Record, 112(5), 1391-1442.

Sampson, R. J., & Raudenbush, S. W. (1999). Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. American Journal of Sociology, 105(3), 603-651.

Sampson, R. J. & Raudenbush, S. W. (2004). Seeing disorder: neighbourhood stigma and the social construction of “broken windows”. Social Psychology Quarterly, 67(4), 319-342.

Sampson, R. J., Raudenbush, S.W. & Earls, F. (1997). Neighbourhoods and violent crime: a multilevel study of collective efficacy. Science, New Series, 277(5328), 918-924.

* Sanson, A., Smart, D. & Misson, S. (2011). Children’s socio-emotional, physical, and cognitive outcomes: Do they share the same drivers? *Australian Journal of Psychology*, 18(3), 311-325.

* Sastry, N. & Pebley, A. R. (2010). Family and neighborhood sources of socioeconomic inequality in children’s achievement. Demography, 47(3), 777-800.

SCP. (1998). Van hoog naar laag, van laag naar hoog [From high to low, from low to high]. The Hague: The Netherlands Institute for Social Research.

Schmit, M. J., Amel, E. L. & Ryan, A. (1993). Self-reported assertive job-seeking behaviors of minimally educated job hunters. Personnel Psychology, 46, 105-124.

Scholte, R. H. J., van Lieshout, C. F. M., de Wit, C. A. M. & van Aken, M. A. G. (2005). Adolescent personality types and subtypes and their psychosocial adjustment. Merrill-Palmer Quarterly, 51(3), 258-286.

Schulz, A., Williams, D. R., Israel, B., Sherman, A. J. & Jackson, J. (2000). Unfair treatment, neighborhood effects, and mental health in the Detroit metropolitan area. Journal of Health and Social Behavior, 41, 314-332.

Sharkey, P. & Elwert, F. (2011). The legacy of disadvantage: Multigenerational neighborhood effects on cognitive ability. American Journal of Sociology, 116(6), 1934-1981.

Shaw, C. R. & McKay, H. D. (1942). Juvenile Delinquency in Urban Areas. Chicago: University of Chicago Press.

Siffert, A., Schwarz, B. & Stutz, M. (2012). Marital conflict and early adolescents’ self-evaluation: The role of parenting quality and early adolescents’ appraisals. Journal of Youth and Adolescence, 41(6), 749-763.

Simons, R. L., Simons, L. G., Chen, Y.-F., Brody, G. H. & Lin, K.-H. (2007). Identifying the psychological factors that mediate the association between parenting practices and delinquency. Criminology, 45(3), 481-517.

* South, S. J., Baumer, E. P. & Lutz, A. (2003). Interpreting community effects on youth educational attainment. Youth and Society, 35(1), 3-36.

Staff, J. & Kreager, D. A. (2008). Too cool for school? Violence, peer status and high school dropout. Social Forces, 87(1), 445-471.

Statistics Netherlands. (2011). Buurtkaart met cijfers 2009. The Hague: Statistics Netherlands.

* Supple, A. J., Ghazarian, S. R., Frabutt, J. M., Plunkett, S. W. & Sands, T. (2006). Contextual influences on latino adolescent ethnic identity and academic outcomes. *Child Development*, 77(5), 1427-1433.

* Sykes, B. & Kuyper, H. (2009). Neighbourhood effects on youth educational achievement in the Netherlands: Can effects be identified and do they vary by student background characteristics? *Environment and Planning A*, 41(10), 2417-2436.

* Sykes, B. & Musterd, S. (2011). Examining neighbourhood and school effects simultaneously: What does the Dutch evidence show? Urban Studies, 48, 1307-1331.

Tajfel, H. (1982). Social psychology of intergroup relations. Annual Review of Psychology, 33, 1-39.

* Tsay, W.-J. (2006). The educational attainment of second-generation mainland Chinese immigrants in Taiwan. Journal of Population Economics, 19(4), 749-767.

Tuvblad, C., Grann, M. & Lichtenstein, P. (2006). Heritability for adolescent antisocial behavior differs with socioeconomic status: Gene–environment interaction. Journal of Child Psychology and Psychiatry, 47, 734-743.

Valentine, G. & McKendrick, J. (1997). Children's outdoor play: Exploring parental concerns about children's safety and the changing nature of childhood. Geoforum, 28(2), 219-235.

Van Aken, M. A. & Semon Dubas, J. (2004). Personality type, social relationships, and problem behaviour in adolescence. European Journal of Developmental Psychology, 1, 331-348.

* Van Der Velden, R. K. W. & Bosker, R. J. (1991). Individuen, gezinnen en buurten: sociale determinanten van het onderwijsniveau [Individuals, families and neighborhoods: Social determinants of educational attainment]. Mens en Maatschappij, 66(3), 277-295.

Van Dorsselaer, S., De Looze, M., Vermeulen-Smit, E., De Roos, S., Verdurmen, J., Ter Bogt, T. & Vollebergh, W. (2010). HBSC 2009. Gezondheid, welzijn en opvoeding van jongeren in Nederland. Utrecht: Trimbos-instituut.

Van Ham, M., Manley, D., Bailey, N., Simpson, L. & Maclennan, D. (2012). New perspectives. In: van Ham, M., Manley, D., Bailey, N., Simpson, L. & Maclennan, D. [Eds.], Neighbourhood effects research: New perspectives, Dordrecht: Springer, 1-22.

Van Ham, M., Manley, D., Bailey, N., Simpson, L. & Maclennan, D. (2013). Understanding neighbourhood dynamics. In: van Ham, M., Manley, D., Bailey, N., Simpson, L. & Maclennan, D. [Eds.], Understanding neighbourhood dynamics: New insights for neighbourhood effects research, Dordrecht: Springer, 1-21.

Van Ham M., Hedman, L., Manley, D., Coulter, R. & Östh, J. Forthcoming. Intergenerational transmission of neighbourhood poverty. An analysis of neighbourhood histories of individuals. Transactions of the Institute of British Geographers.

Vermulst, A. A. & Gerris, J. R. M. (2005). QBF: Quick Big Five persoonlijkheidstest handleiding [Quick Big Five personality test manual]. Leeuwarden, the Netherlands: LDC Publications.

Visser, P., Van Dam, F. & Hooimeijer, P. (2008). Residential environment and spatial variation in house prices in the Netherlands. Tijdschrift voor Economische en Sociale Geografie, 99(3), 348-360.

Von Eye, A. & Mun, E.-Y. (2013). Log-linear modeling. Hoboken, NJ: Wiley.

Wacquant, L. (2008). Urban outcasts. A comparative sociology of advanced marginality. Cambridge: Polity Press.

* Williams, T. R., Davis, L. E., Saunders, J. & Williams, J. H. (2002). Friends, family, and neighborhood: Understanding academic outcomes of African American youth. Urban Education, 37(3), 408-431.

Willis, P. (1977). Learning to labor. New York: Columbia University Press.

* Wilson, K. (2000). Using the PSID to study the effects of school spending. *Public Finance Review*, 28(5), 428-451.

* Wilson, K. (2001) The determinants of educational attainment: Modeling and estimating the human capital model and education production functions. Southern Economic Journal, 67(3), 518-551.

Wilson, W. J. (1987). The truly disadvantaged. The inner city, the underclass, and public policy. Chicago: The University of Chicago Press.

Wilson, W. J. (1996). When work disappears. New York, NY: Knopf.

Wissink, I. B., Dekovic, M., Yagmur, S., Stams, G. J. & De Haan, M. (2008). Ethnic identity, externalizing problem behaviour and the mediating role of self-esteem among Dutch, Turkish-Dutch and Moroccan-Dutch adolescents. Journal of Adolescence, 31, 223-240.

* Witherspoon, D., Schotland, M., Way, N. & Hughes, D. (2009). Connecting the dots: How connectedness to multiple contexts influences the psychological and academic adjustment of urban youth. *Applied Developmental Science*, 13(4), 199-216.

* Wodtke, G. T., Harding, D. J. & Elwert, F. (2011). Neighborhood effects in temporal perspective: The impact of long-term exposure to concentrated disadvantage on high school graduation. *American Sociological Review*, 76(5), 713-736.

* Woolley, M. E. & Grogan-Kaylor, A. (2006). Protective family factors in the context of neighborhood: Promoting positive school outcomes. *Family Relations*, 55(1), 93-104.

* Woolley, M. E., Grogan-Kaylor, A., Gilster, M. E., Karb, R. A., Gant, L. M., Reischl, T. M. & Alaimo, K. (2008). Neighborhood social capital, poor physical conditions, and school achievement. Children and Schools, 30(3), 133-145.

Wu, M.-Y. (2013). The concept of guan in the Chinese parent-child relationship. In: Yi, C.-C. [Ed.], The psychological well-being of East Asian youth. Dordrecht: Springer, 29-49.

Zalot, A, Jones, D. J., Kincaid, C. & Smith, T. (2009). Hyperactivity, impulsivity, inattention [HIA] and conduct problems among African American youth: The roles of neighborhood and gender. Journal of Abnormal Child Psychology, 37, 535–549.

Zhou, M. (2009). How Neighbourhoods Matter for Immigrant Children: The Formation of Educational Resources in Chinatown, Koreatown and Pico Union, Los Angeles. Journal of Ethnic and Migration Studies, 35(7), 1153-1179.

Zhou, M. & Bankston, C. L. (1998). Growing up American. How Vietnamese children adapt to life in the US. New York: Russell Sage Foundation.

Zimmerman, G. M. (2010). Impulsivity, offending, and the neighborhood: Investigating the person–context nexus. Journal of Quantitative Criminology, 26, 301–332.

CURRICULUM VITAE

Jaap Nieuwenhuis (1986) was born in Oostwold (Westerkwartier) and raised in Gouda and Heteren. After receiving his Bachelor in Sociology in 2008, he studied Sociology and Social Research at Utrecht University. During the Master he specialised in neighbourhood studies and wrote a Master thesis on the spatial and individual predictors of conflict between neighbours. He received his Master degree in 2010.

Immediately thereafter, Jaap started his PhD research at the Urban and Regional Research Centre Utrecht (URU), Utrecht University, in the section of Urban Geography. In the spring of 2014, he spent three months as visiting researcher at the Division of Social Science of Hong Kong University of Science and Technology.

As of September 2014, Jaap holds a postdoctoral position in the section of Urban Geography, Utrecht University on a project about youths' resilience and vulnerability to maladaptation. In collaboration with researchers from Adolescent Development, Utrecht University, this project will look at interactions between neighbourhood adversity and individual characteristics.

Also as of September 2014, Jaap is postdoctoral researcher at the OTB – Research for the Built Environment in the Faculty of Architecture and the Built Environment, Delft University of Technology. There, Jaap will carry out research within a European project about socio-spatial inequality, deprived neighbourhoods, and neighbourhood effects.

ISBN/EAN 978-90-393-6261-7
NUR-code 758
NUR-description Urban sociology

Publisher Utrecht University
Typography Coppens Alberts