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A GIS APPROACH TO SCHOOL ALLOCATION PATTERNS IN BRIGHTON & HOVE

Aim

To use Geographical Information System methods to shed further light on the social effects of school admissions patterns in Brighton & Hove.

Segregation studies in education

Extending the “segregation” concept

- Segregation is a concept first elaborated in relation to racial divisions in American cities.
- In education, it is usually applied to social class, bringing intrinsic definitional problems.
- Not least, we have no social class indicator in the NPD.
- And segregation in education *is overlaid* on residential segregation that itself is still not completely understood.
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Segregation effects

- People are already segregated (by social class, by ethnicity) in areas of residence.
- Allocation to schooling may impose further *segregation effects* on top of residential segregation. Alternatively it may desegregate.
- At the same time, education *explicitly* segregates children by gender and by religion.

Classic dimensions of segregation by residence

- Massey and Denton:
- - Evenness
- - Exposure
- - Clustering
- - Centrality
- - Concentration
- This classification was challenged by Brown and Chung 2006, and in several papers by Johnston et al.

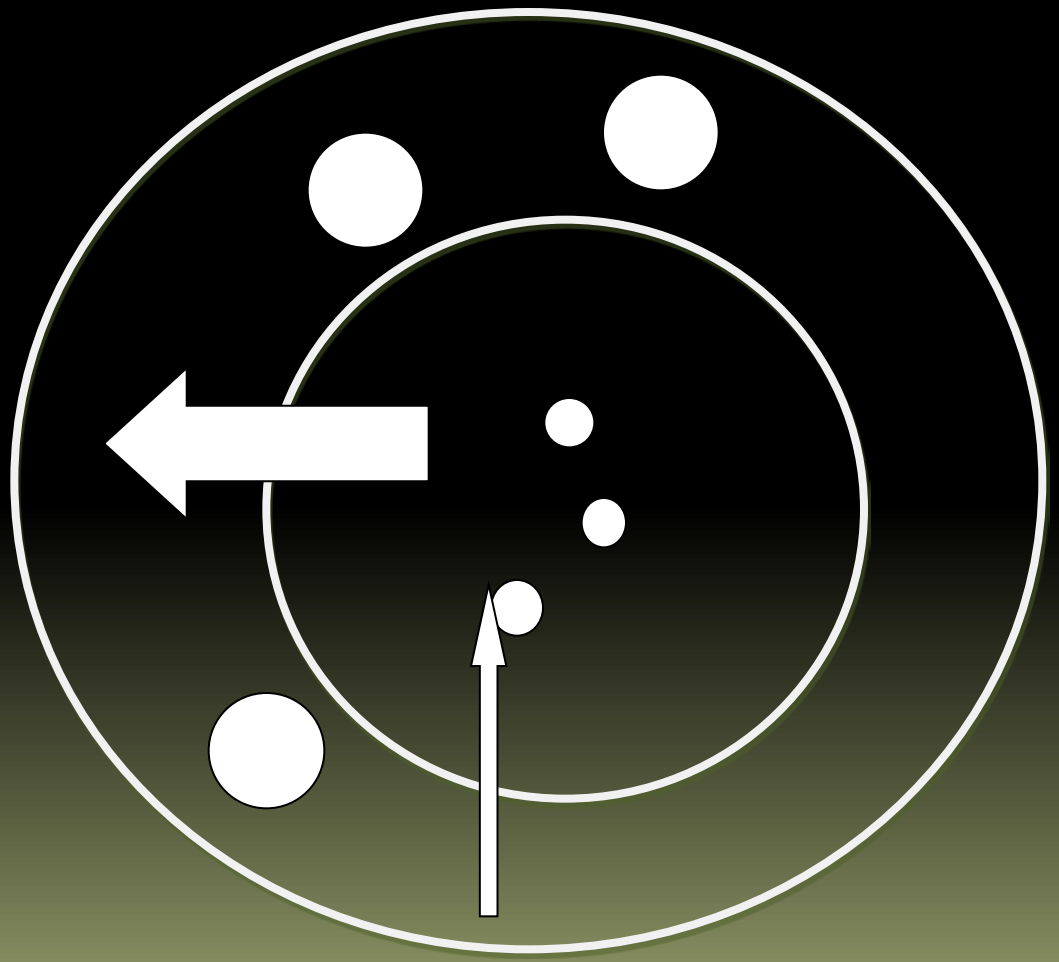
Brown and Chung's argument

- "the five dimensions … reduce to two – *concentration-evenness* and *clustering-exposure*."
- Three of their hexagon patterns seem particularly relevant to British towns and cities. (Inner city deprivation, peripheral estates, east-west).
- However, it is more complex for shire county LAs with several urban areas.

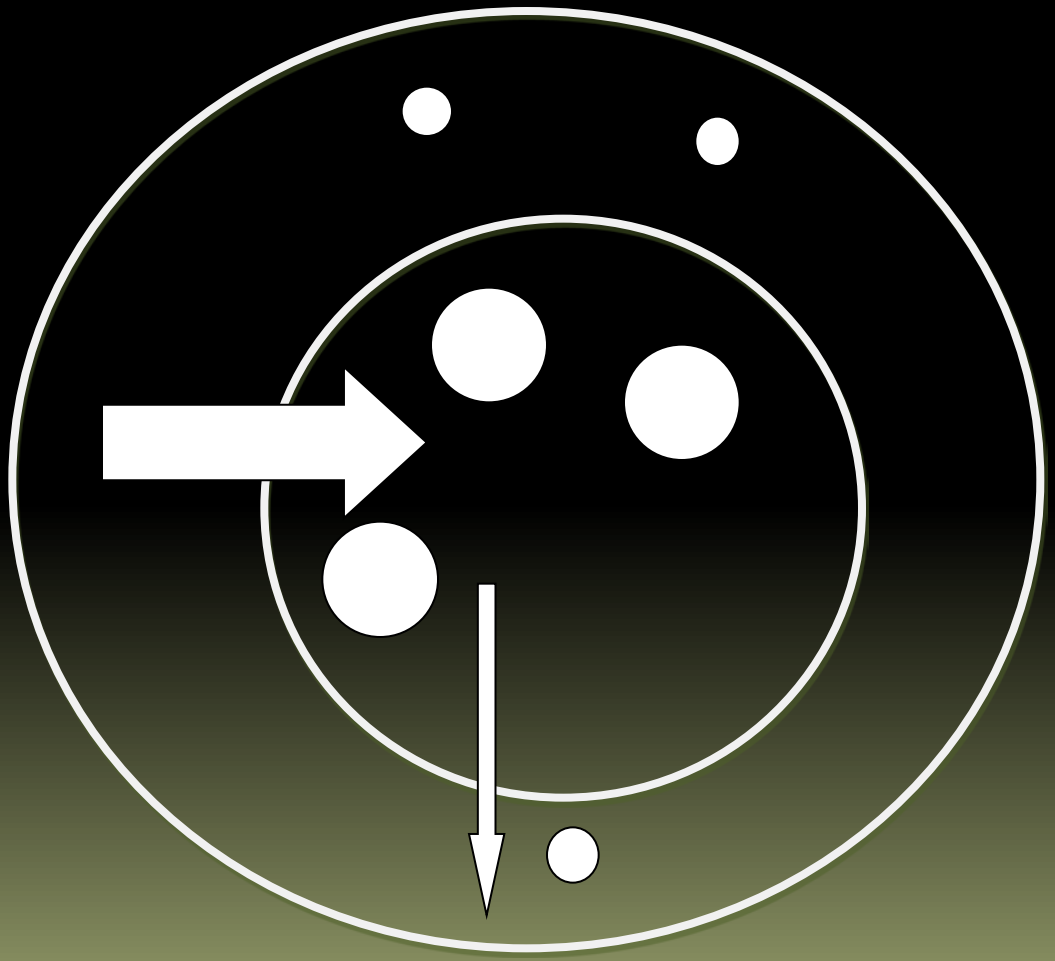
Desegregation? Or a cycle of poor access?

- If schools in the working-class areas of town have *already* gone into cycles of decline and shrunk or closed, there is movement from the working-class to middle-class areas *even if* children attend their nearest school.

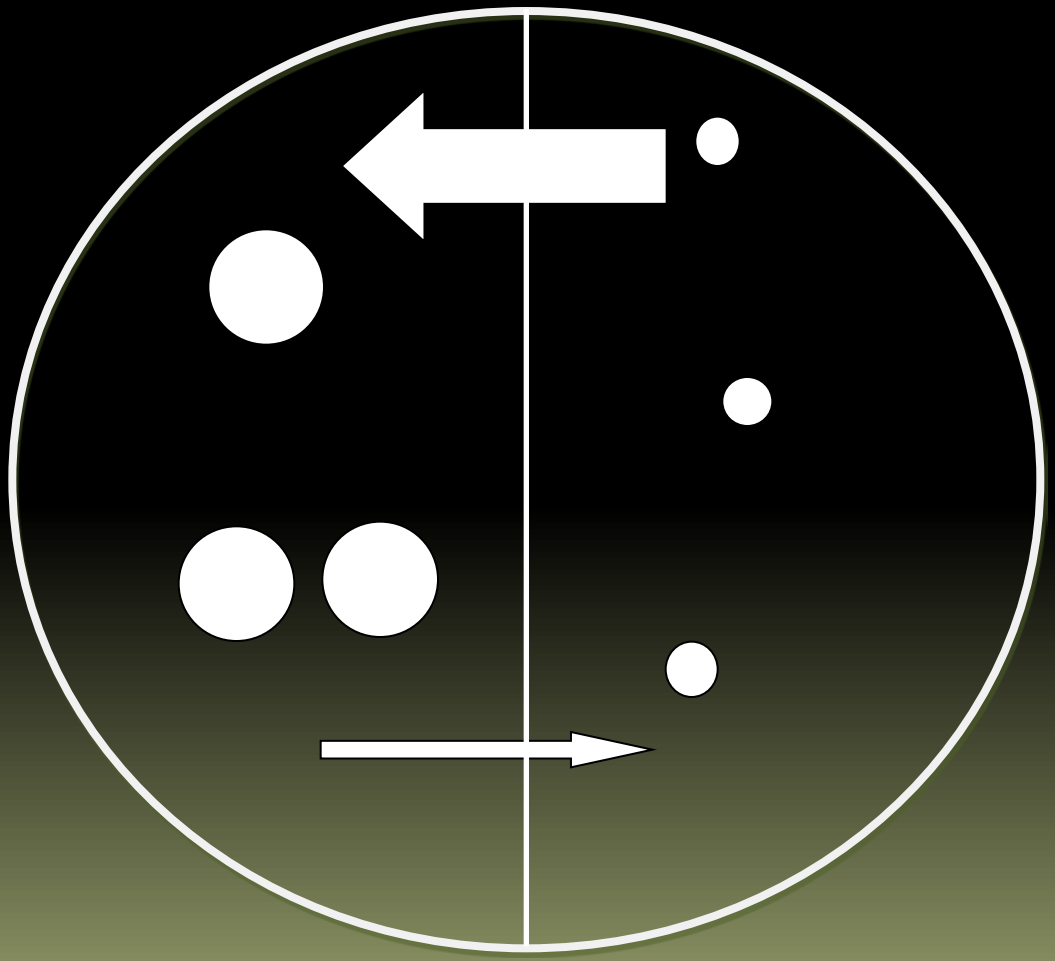
Schema: movement from inner city after school closures



Schema: movement in city with peripheral estates



Schema: movement in city with deprivation in East



Apparent desegregation

- If a cycle of decline for schools serving deprived areas has already set in, and some have closed or shrunk, then there is net outflow from those areas.
- Even if all children attend their nearest school.
- This shows up as desegregation (increases both evenness and exposure), but in fact it reinforces the cycle of decline.

Methods

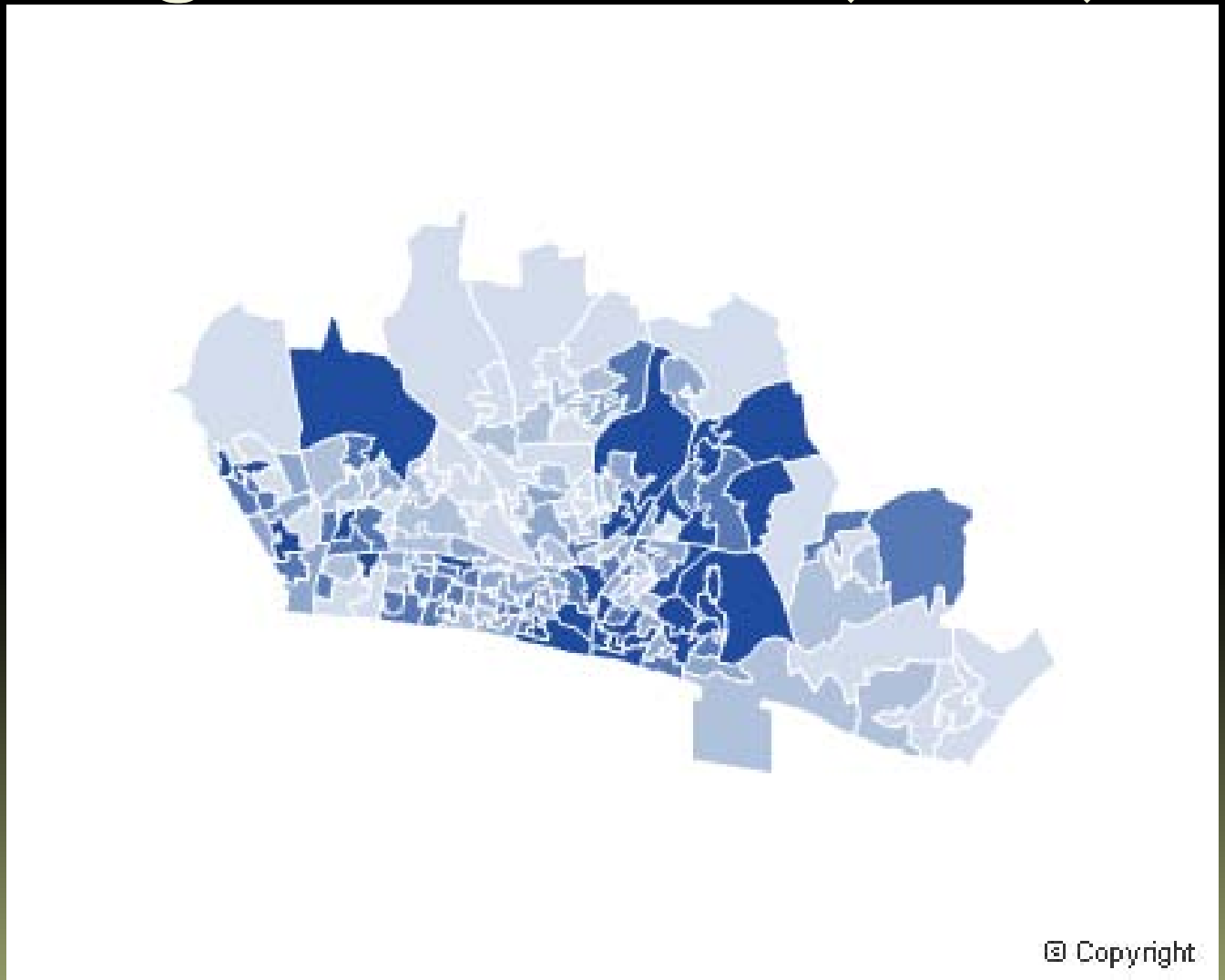
- National Pupil Database data including area of residence and school of Year 7 pupils studying in Brighton & Hove (2009-2010) was obtained and analysed.
- Network analysis was used in order to derive and add to the dataset the travel distance by road.

Brighton & Hove

Local authority characteristics

- A local authority of particular policy interest as the first to operation a "lottery" in school admissions, which is intended to create greater fairness and equity. (Allen et al. 2010)
- Relatively gentle status hierarchy.
- Relatively self-contained LA.

Pattern of deprivation in Brighton & Hove (LSOA)



Patterns of concentration of deprivation

- At least three patterns co-exist:
- Inner urban (some seafront LSOAs, houses in multiple occupation, homelessness, migrant population)
- Peripheral estates
- East-West: two large areas of social housing in the east, one in the west

The schools

School	Ward of location	Number of pupils (2009-10)	5 A*-C including English and Maths
Blatchington Mill	Stanford	332	65%
Brighton Aldridge Community Academy (Falmer)	Moulsecoomb and Bevendean	138	23%
Cardinal Newman	Stanford	339	59%
Dorothy Stringer	Withdean	341	63%
Hove Park	Stanford	294	41%
Longhill	Rottingdean	238	43%
Patcham	Patcham	201	37%
Portslade Community College	North Portslade	176	35%
Varndean	Withdean	242	58%

Distance to nearest school

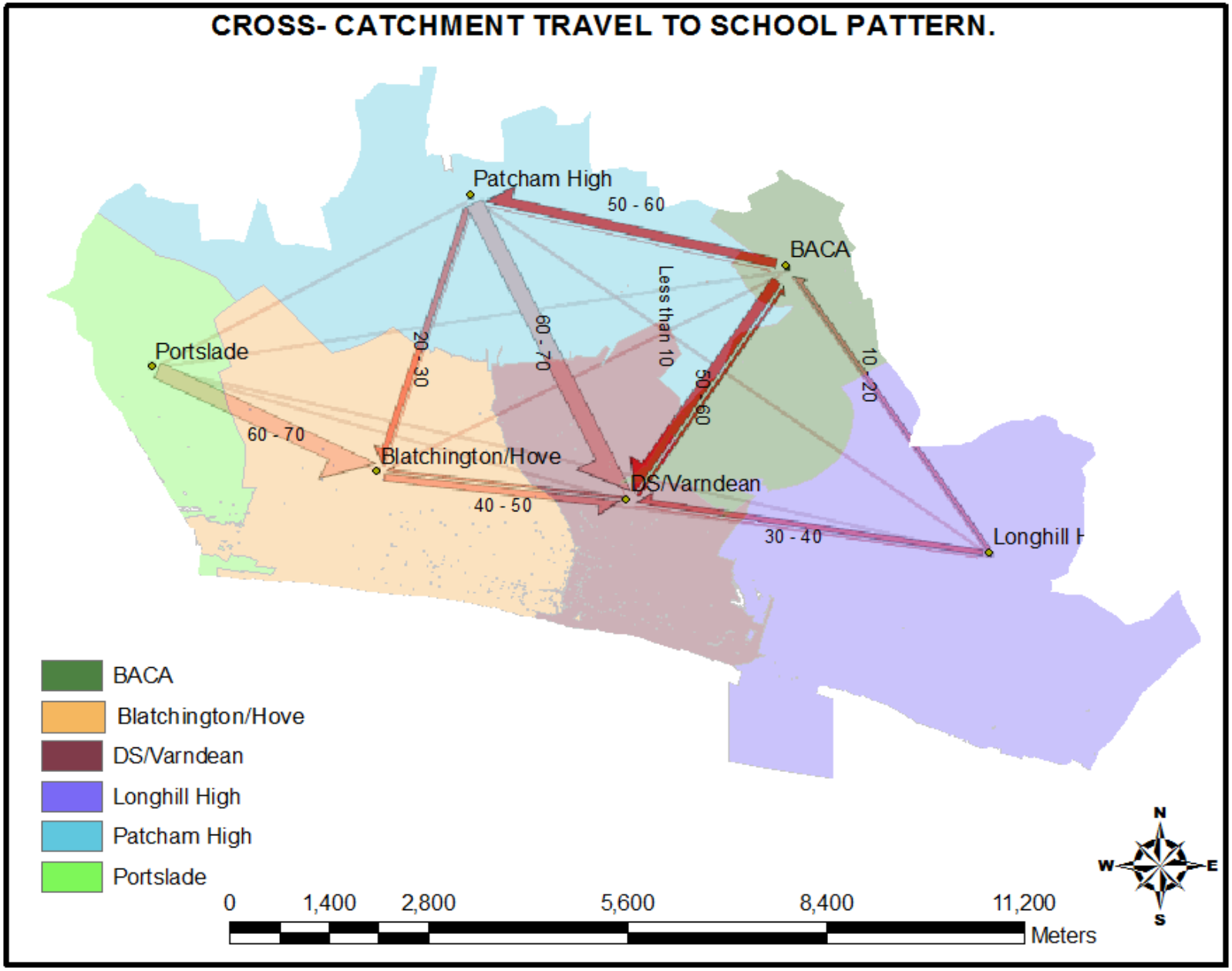
Ward	Average distance from school	Average pupils' IDACI
Withdean	0.47	0.07
Stanford	0.33	0.10
Preston Park	0.50	0.11
Patcham	0.45	0.15
Rottingdean Coastal	1.23	0.15
Westbourne	0.64	0.17
Goldsmid	0.42	0.17
Wish	0.89	0.17
Central Hove	0.83	0.19
Regency	0.83	0.20
South Portslade	0.99	0.22
Brunswick and Adelaide	0.78	0.23
Woodingdean	1.15	0.23
North Portslade	0.36	0.23
St. Peter's and North Laine	1.00	0.24
Hangleton and Knoll	0.68	0.25
Queen's Park	1.63	0.28
Hollingbury and Stanmer	0.64	0.32
Hanover and Elm Grove	1.45	0.28
Moulsecoomb and Bevendean	0.91	0.47
East Brighton	1.80	0.55
Grand Total	**0.84**	0.24

Effects of residential segregation on travel to school

- Even if all students attended nearest school, they would have different lengths of journey to school.
- These are direct distances, and do not take account of relief.
- Given the hilly nature of Brighton & Hove's urban fringe, some students, particularly from deprived areas, have longer journeys to school than policy-makers believe.

SEN by ward of residence

Ward	Percentage of pupils who have SEN
Withdean	23%
Stanford	24%
Preston Park	22%
Patcham	37%
Rottingdean Coastal	30%
Westbourne	22%
Goldsmid	27%
Wish	25%
Central Hove	25%
Regency	30%
South Portslade	26%
Brunswick and Adelaide	5%
Woodingdean	34%
North Portslade	34%
St. Peter's and North Laine	34%
Hangleton and Knoll	36%
Queen's Park	36%
Hollingbury and Stanmer	44%
Hanover and Elm Grove	37%
Moulsecoomb and Bevendean	55%
East Brighton	52%
Grand Total	**35%**


CROSS- CATCHMENT TRAVEL TO SCHOOL PATTERN.
Patcham High
50 - 60
BACA
Less than 10
Portslade
20 - 30
60 - 70
10 - 20
50 - 60
60 - 70
Blatchington/Hove
DS/Varndean
40 - 50
30 - 40
Longhill H
BACA
Blatchington/Hove
DS/Varndean
Longhill High
Patcham High
Portslade
0
1,400
2,800
5,600
8,400
11,200
Meters
N
W
E
S

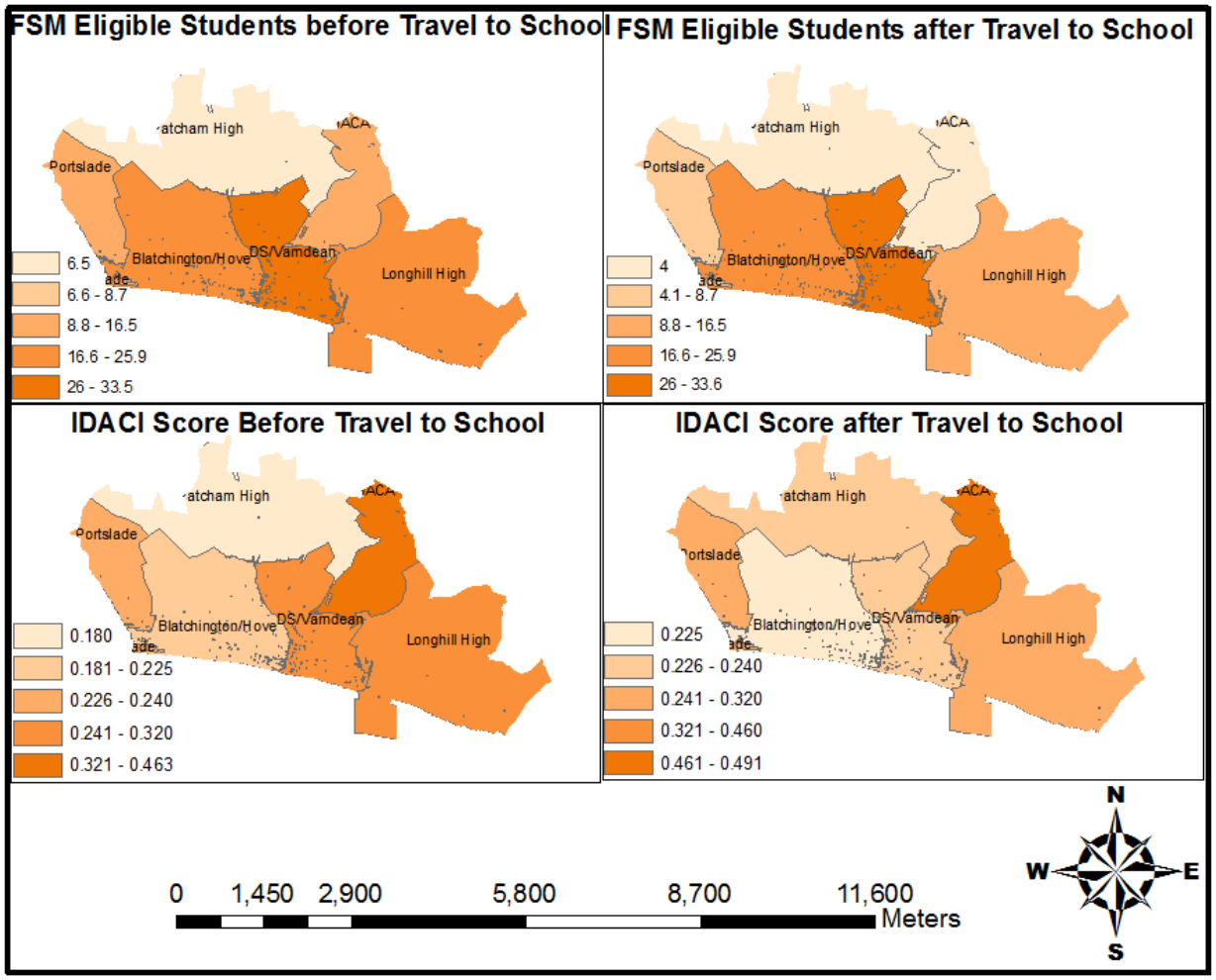
Journey lengths (calculated by network analysis)

School	Percentage living less than 1 mile away	Percentage living more than 3 miles away	Percentage travelling by car
BACA	28.7	17.6	32%
Blatchington Mill	33.1	8.4	14%
Cardinal Newman	13.4	33.4	22%
Dorothy Stringer	35.9	9.2	10%
Hove Park	14.9	10.3	12%
Longhill	5.4	53.5	22%
Patcham	46.3	38.3	24%
Portslade	51.7	11.4	4%
Varndean	26.8	11.2	-

Centripetal pattern

- The overall pattern of movement in Brighton & Hove is from the outlying social housing estates into more central areas of the city. This centripetal movement is the opposite of the centrifugal movement found in further education in London by Watson and Church (2009), but that is because of the different patterns of residential segregation in the two cities

Effects of allocation



Implications

- Students from poorer areas are pulled into wealthier areas for education.
- Schools in those poorer areas may then face falling rolls, enter into a cycle of decline and eventually face closure.
- This already happened in the case of COMART, situated in the most deprived ward of Brighton & Hove.

Conclusion

- In considering the segregation effects of allocation to schooling, all the dimensions of (geographical) segregation must be taken into account, not only evenness as has been argued (Gorard and Taylor 2002) .
- Place matters – to children. It is part of the whole learning experience. The journey to school "is a space of its own". (Murray 2009)