

Using OAC for analysis of the 2001 Census interaction data

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What are Census Interaction data?

How can they be used with area classifications

Examples

Funded from 2006-2011

Separate units for different sets of data

- Area statistics
- Boundary data
- Interaction data
- Samples of Anonymised Records
- Longitudinal Study
- Scottish Longitudinal Study



CeLSIUS

Longitudinal Studies Centre - Scotland

Home of the Scottish Longitudinal Study

Census Interaction Data



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What are the Census interaction data?

- Migration data
- Journey to work data
- Journey to school data

Interaction data are *flow* data

- Also referred to as 'origin-destination





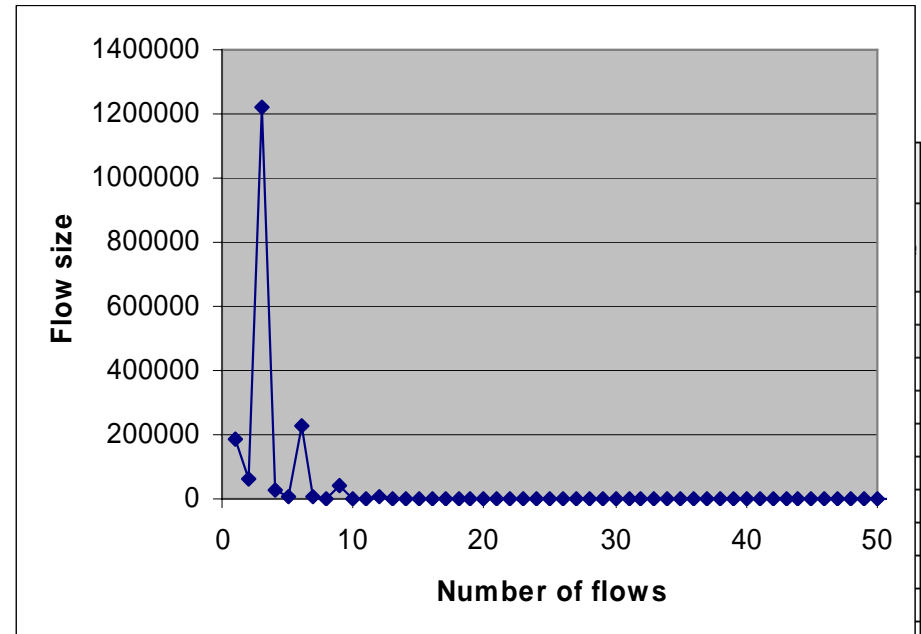
Number of dis-aggregate tables in each data set

	Level 1 [‘Districts’]	Level 2 [‘Wards’]	Level 3 [OAs]
Special Migration Statistics	10	5	1
Special Workplace Statistics	7	6	1
Special Travel Statistics	7	6	1



The interaction data at OA level

- Only one table available
 - SMS: Age by sex
 - SWS / STS: Mode of travel
- Data are affected by Small Cell Adjustment
 - SCAM applied to Scottish data
 - No OA level SWS for Northern Ireland



Bicycle	28	29	30
On foot	31	32	33
Other	34	35	36

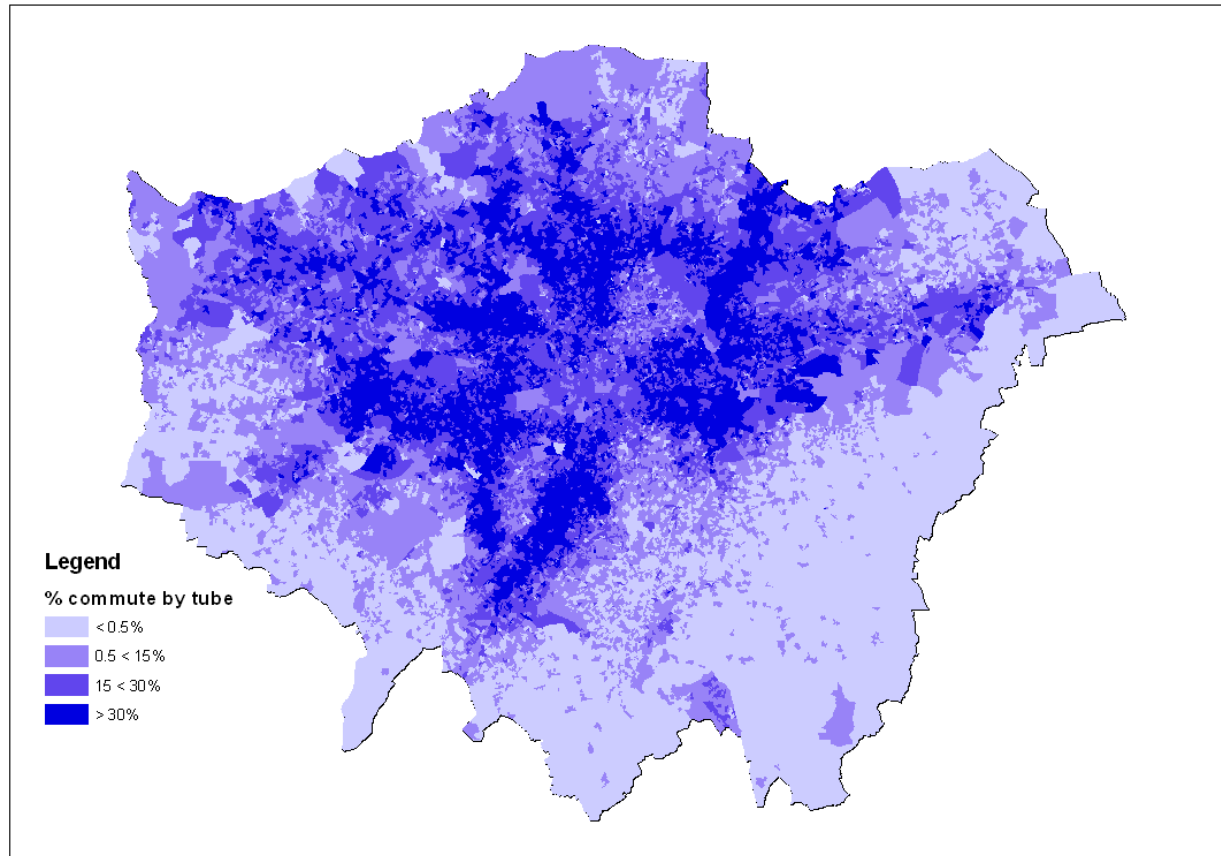
Observed frequencies of flows of size n , 2001 SMS Level 3

OA level SWS



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Proportion of commuters by OA of residence, who travel by tube to London workplaces



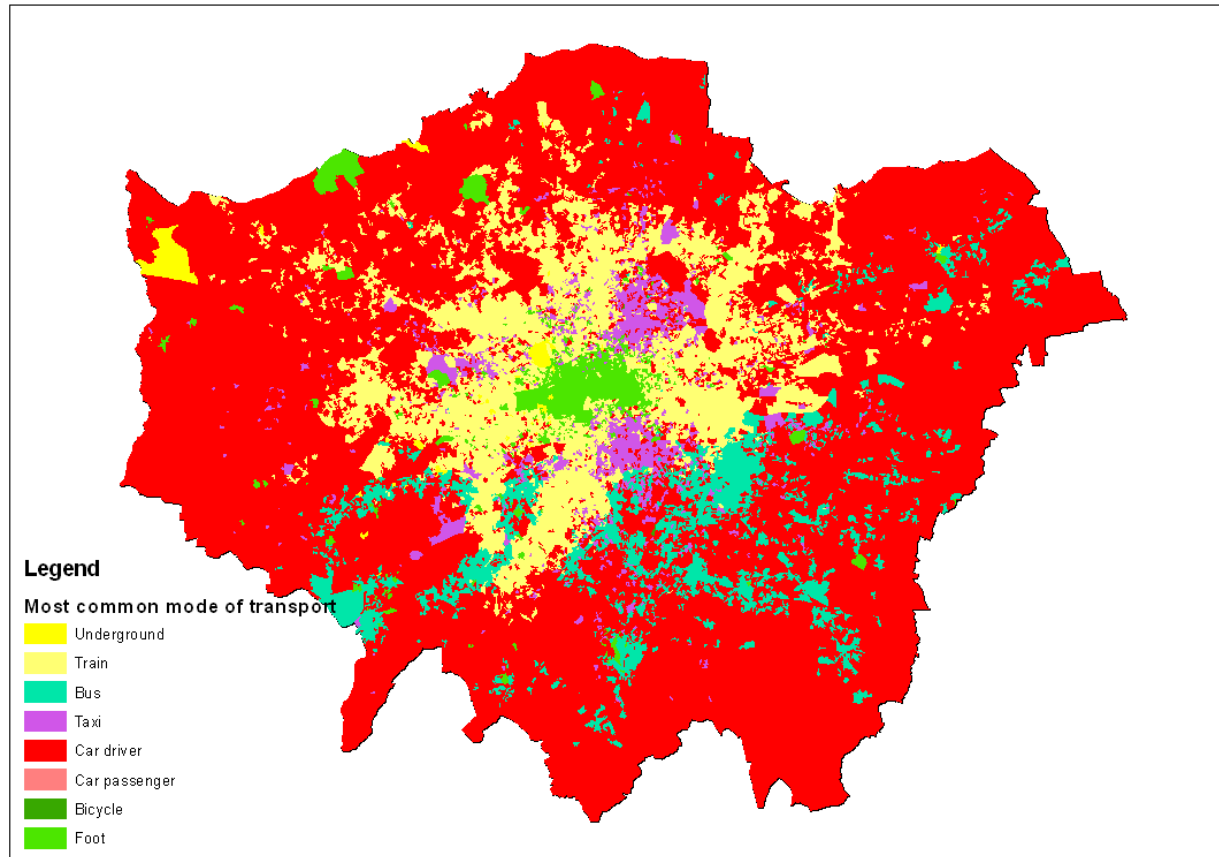
Source: 2001 Census – Special Workplace Statistics Level 3

OA level SWS



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Most commonly used mode of transport by OA of residence for journeys to London workplaces



Source: 2001 Census – Special Workplace Statistics Level 3

Using OAC with interaction data



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- Adding OAC codes to output
- Aggregate origins or destinations by OAC class
- Aggregate both by OAC class
- Use in conjunction with distance data

- Examples of use with SMS, SWS, STS?

Using OAC classifications



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00DAFN0001	2a2	00DAFN0002	2a2	0	0
00DAFN0001	2a2	00DAFN0003	2a2	0	0
00DAFN0001	2a2	00DAFN0004	7a1	0	0
00DAFN0001	2a2	00DAFN0005	7a3	0	0
00DAFN0001	2a2	00DAFN0006	7a1	0	0
00DAFN0001	2a2	00DAFN0007	4a2	0	0
00DAFN0001	2a2	00DAFN0008	2a1	0	0
00DAFN0001	2a2	00DAFN0009	2a2	0	0
00DAFN0001	2a2	00DAFN0010	2a1	0	0
00DAFN0001	2a2	00DAFN0011	2a1	3	0
00DAFN0001	2a2	00DAFN0012	2a1	0	0
00DAFN0001	2a2	00DAFN0013	2a1	0	0
00DAFN0001	2a2	00DAFN0014	2a1	0	0
00DAFN0001	2a2	00DAFN0015	2a2	0	0
00DAFN0001	2a2	00DAFN0016	2b2	0	0
00DAFN0001	2a2	00DAFN0017	2a1	0	0
00DAFN0001	2a2	00DAFN0018	2a1	0	0

Aggregation by OAC



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- Example: what classes of areas to migrants to location X come from?
- Origins: OAs aggregated by OAC supergroup
- Destinations: three districts with differing degrees of deprivation
 - Rank districts by mean Index of Multiple Deprivation score of contained SOAs
 - Pick highest, lowest and middle

Migrants' origins - supergroup



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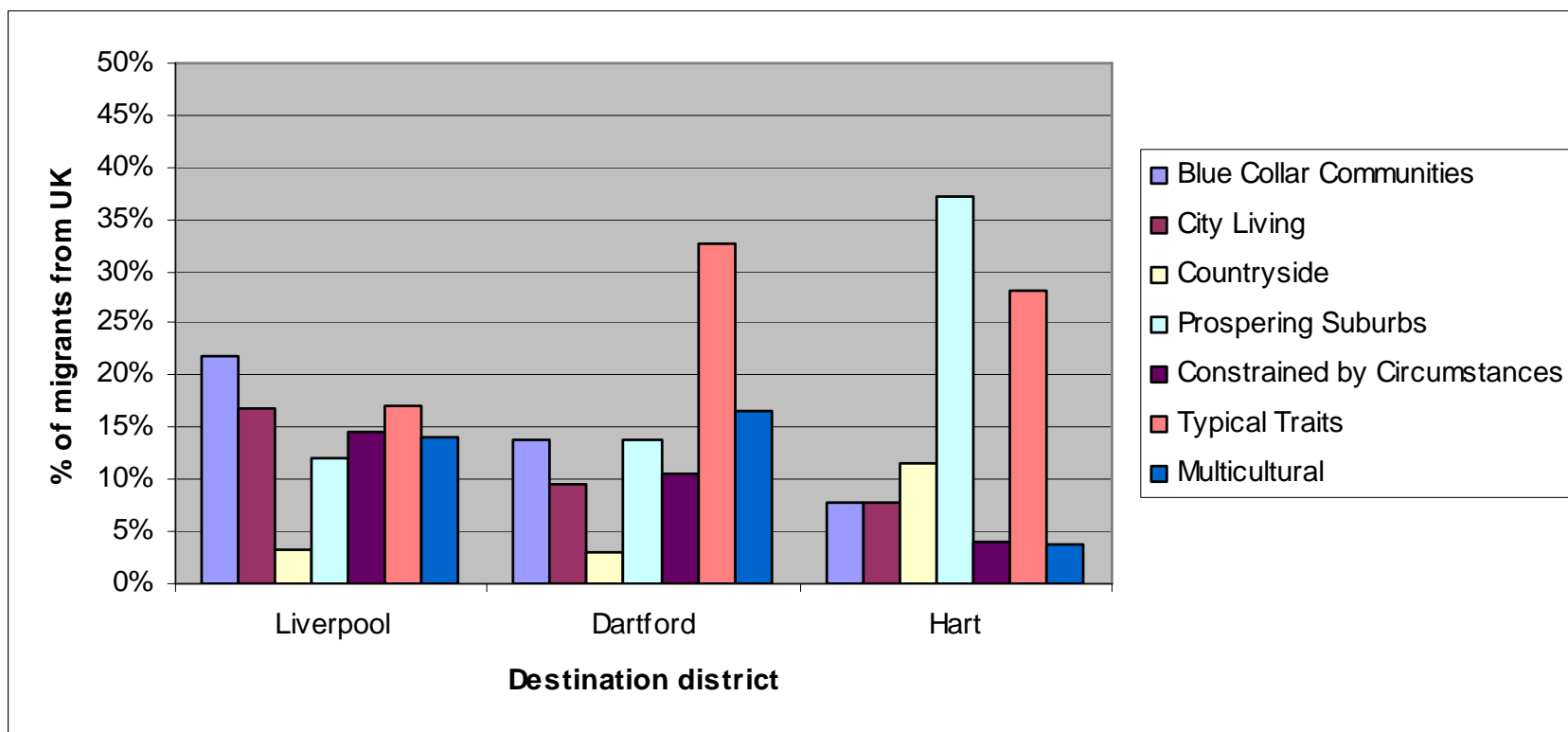
Origins	Destinations		
	Liverpool	Hart	Dartford
Blue Collar Communities	11328	701	1080
City Living	8666	702	749
Countryside	1670	1047	234
Prospering Suburbs	6235	3397	1083
Constrained by Circumstances	7536	359	830
Typical Traits	8843	2552	2555
Multicultural	7279	348	1308

Source: 2001 Census – Special Migration Statistics Level 3

Migrants' origins - supergroup



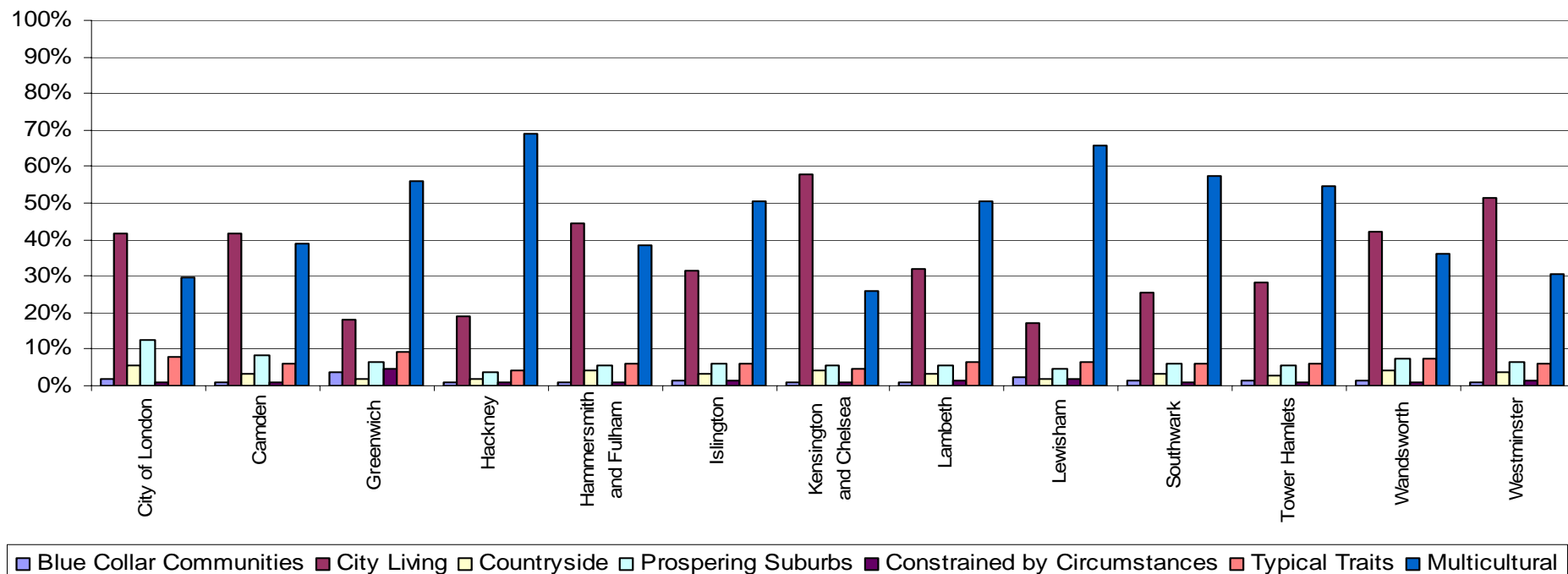
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Migrant's origins - supergroup



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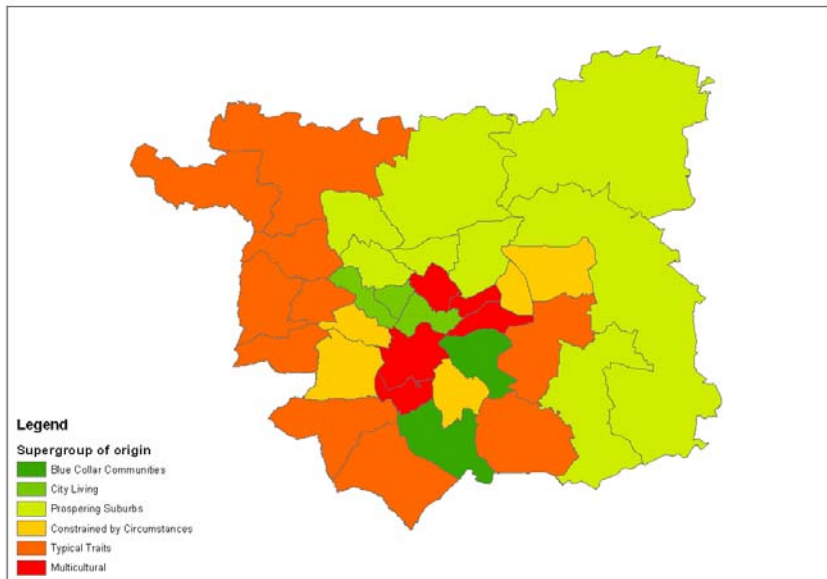


Source: 2001 Census – Special Migration Statistics Level 3

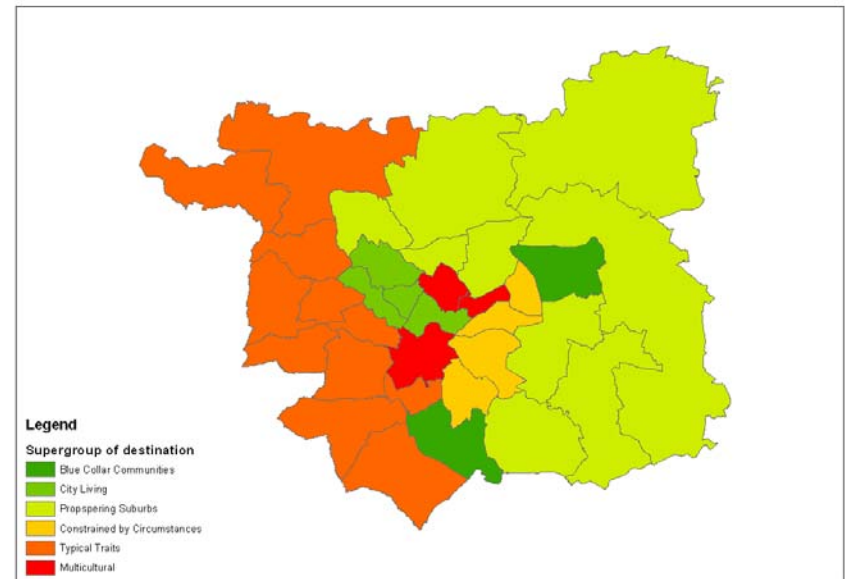
Aggregating by OAC and area



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OAC supergroup of origin OA: class with largest share of in-migrants, by ward



OAC supergroup of destination OA: class with largest share of out-migrants, by ward

Migration between OAC supergroups



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Origins	Destinations						
	Blue Collar Communities	City Living	Countryside	Prospering Suburbs	Constrained by Circumstances	Typical Traits	Multicultural
Blue Collar Communities	297427	43405	67688	117426	150558	166186	42462
City Living	34542	305087	39016	84738	45976	138404	141253
Countryside	61016	63853	232354	106963	39424	119329	19388
Prospering Suburbs	89576	137367	127611	356133	69012	224447	56396
Constrained by C'stances	150650	45039	38127	72396	210535	115089	35760
Typical Traits	153930	134147	124601	261518	115629	402409	78837
Multicultural	58093	127209	23474	65712	47256	107722	419826

Source: 2001 Census – Special Migration Statistics Level 3

Net flows between OAC supergroups



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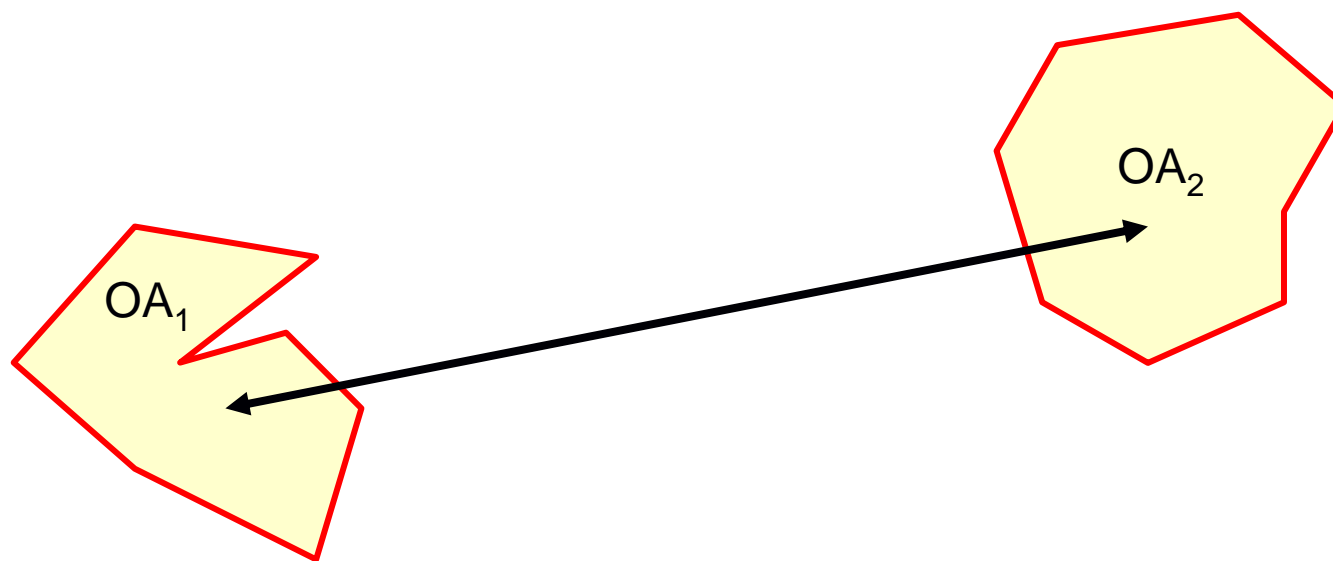
Origins	Destinations							Net outflow
	Blue Collar Communities	City Living	Countryside	Prospering Suburbs	Constrained by Circumstances	Typical Traits	Multicultural	
Blue Collar Communities	0	8863	6672	27850	-92	12256	-15631	39918
City Living	-8863	0	-24837	-52629	937	4257	14044	-67091
Countryside	-6672	24837	0	-20648	1297	-5272	-4086	-10544
Prospering Suburbs	-27850	52629	20648	0	-3384	-37071	-9316	-4344
Constrained by Circumstances	92	-937	-1297	3384	0	-540	-11496	-10794
Typical Traits	-12256	-4257	5272	37071	540	0	-28885	-2515
Multicultural	15631	-14044	4086	9316	11496	28885	0	55370

Source: 2001 Census – Special Migration Statistics Level 3

Aggregate by distance travelled



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Mean distance travelled (km) to City of London, by OAC supergroup of origin

Supergroup	Persons	km travelled
Blue Collar Communities	9616	40.6
City Living	88136	12.7
Countryside	13813	77.9
Prospering Suburbs	60959	43.0
Constrained by Circumstances	6705	37.8
Typical Traits	50535	35.8
Multicultural	99225	10.4

Journey to place of study



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Mean distance travelled (km) to place of study, by OAC group of origin and mode of transport

Group label	Group code	Underground	Train	Bus	Taxi	Car driver	Car passenger	Motorbike	Bicycle	On foot	Other
Terraced Blue Collar	1a	11	18	6	7	12	4	9	4	2	6
Younger Blue Collar	1b	3	20	6	5	11	4	2	2	2	32
Older Blue Collar	1c	5	27	9	12	19	6	16	6	3	43
Transient Communities	2a	3	14	5	4	7	4	6	2	2	12
Settled in the City	2b	7	24	6	5	10	4	41	2	2	20
Village Life	3a	2	30	12	10	23	8	9	8	7	53
Agricultural	3b	15	39	10	9	26	10	17	12	14	34
Accessible Countryside	3c	20	28	9	6	18	7	17	5	5	5
Prospering Younger Families	4a	7	18	6	7	14	4	9	3	2	8
Prospering Older Families	4b	13	20	8	9	15	4	8	3	2	22
Prospering Semis	4c	6	14	6	6	15	3	9	3	2	11
Thriving Suburbs	4d	11	19	7	7	13	4	4	8	3	20
Senior Communities	5a	3	11	6	13	12	4	13	3	2	4
Older Workers	5b	7	18	7	6	13	5	9	9	2	16
Public Housing	5c	4	12	5	5	9	4	5	6	2	8
Settled Households	6a	4	11	5	8	10	3	4	4	2	4
Least Divergent	6b	12	26	10	8	18	5	3	2	3	48
Young Families in Terraced Homes	6c	4	16	7	7	9	5	15	2	2	48
Aspiring Households	6d	7	22	6	6	10	3	10	2	2	19
Asian Communities	7a	23	10	4	2	4	2	3	0	2	1
Afro-Caribbean Communities	7b	2	28	5	3	7	3	2	2	2	3

Source: 2001 Census – Special Travel Statistics Level 3

- OAC can be used simply as a contextual reference
- OA level interaction data have to be treated with caution, but are not useless
- OAC can enhance the OA level interaction data
- Data can be aggregated on the basis of OAC as well as on the basis of geography
- Spatial information can be retained by combining OAC aggregation with distance-travelled information