

Excess or wasteful commuting assessed by sex and socio-economic group: London, Birmingham and Manchester, England.

Martin Frost (Birkbeck College, University of London) and Nigel Spence (Queen Mary, University of London)

Abstract.

This research considers the application of an urban zonal travel optimisation model to the actual commuting patterns between residences and workplaces in the three largest English cities in 1981 and 1991. The model produces an estimate of the average commuting distance required if individuals could exchange residences and workplaces to minimise distance travelled. In contrast to previous work published by these authors (Transportation Research) individuals in this paper are classified separately by socio-economic group and by sex. Residences and workplaces can be matched only by persons of the same socio-economic group or sex. The proportion of the actual commuting distance above the optimum is defined as excess or wasteful commuting. The existing literature using this methodology can be criticised on the grounds that individuals of different socio-economic groups (essentially based on employment type) have had their residences and workplaces coupled prior to the excess commuting calculations. This is certainly not how urban labour markets work. This paper is the first example to undertake the matching by separate segments of the labour force and as a consequence achieve a better approximation of reality. The results are surprising and counterintuitive - there appears to be greater wasteful commuting (according to this methodology) for individuals travelling shorter distances - most often equated with women and lower socio-economic groups.

PLEASE NOTE THAT THIS PAPER IS IN THE PROCESS OF BEING COMPLETED AND WILL BE CIRCULATED IN DISCUSSION PAPER FORM AT THE CONFERENCE. THE PAPER WILL BE BASED ON THE FOLLOWING TWO KEY TABLES.

Excess Commuting: 1981-1991 London, Manchester and Birmingham by Gender

		In-commuting							In-commuters subtracted					
		Jobs	Person km	LP person km		Jobs	Person km	LP person km	Mean distance	LP mean distance	Excess	Mean distance	LP mean distance	Excess
1991	London				43233									
	Male	179287	3235420	2674475		2149725	1733118	18.0	14.9	17.3	8.0	6.9	13.3	
	Female	144122	1556100	1210866	18112	806245	741111	10.8	8.4	22.2	6.0	3.7	37.4	
Birmingham	Male	45122	430315	294245	11801	234848	184119	9.5	6.5	31.6	5.9	3.3	43.7	
	Female	34577	222321	155035	5793	89159	70130	6.4	4.5	30.3	4.6	2.9	36.2	
Manchester	Male	41827	439976	311453	9343	250454	199538	10.5	7.4	29.2	5.8	3.4	40.9	
	Female	35041	223999	156388	4675	92823	78608	6.4	4.5	30.2	4.3	2.6	40.7	
1981	London													
	Male	208010	3425430	2812257	43871	2183648	1738640	16.5	13.5	17.9	7.6	6.5	13.5	
	Female	143394	1252660	969815	13366	578437	540749	8.7	6.8	22.6	5.2	3.3	36.4	
Birmingham	Male	50024	427347	292033	10819	214944	170311	8.5	5.8	31.7	5.4	3.1	42.7	
	Female	32867	183824	130400	4187	62524	49775	5.6	4.0	29.1	4.2	2.8	33.5	
Manchester	Male	48219	424973	289166	8075	204565	162250	8.8	6.0	32.0	5.5	3.2	42.4	
	Female	34907	186209	128740	3175	63976	51082	5.3	3.7	30.9	3.9	2.4	36.5	
Change 1981-1991	London													
	Male	-13.8	-5.5	-4.9	-1.5	-1.6	-0.3	9.6	10.3	-3.1	5.5	5.8	-1.8	
	Female	0.5	24.2	24.9	35.5	39.4	37.1	23.6	24.2	-1.7	14.8	13.0	2.7	
Birmingham	Male	-9.8	0.7	0.8	9.1	9.3	8.1	11.6	11.7	-0.1	8.3	6.4	2.3	
	Female	5.2	20.9	18.9	38.4	42.6	40.9	15.0	13.0	4.1	9.4	4.9	8.1	
Manchester	Male	-13.3	3.5	7.7	15.7	22.4	23.0	19.4	24.2	-8.6	6.3	9.0	-3.5	
	Female	0.4	20.3	21.5	47.2	45.1	53.9	19.8	21.0	-2.2	12.1	4.7	11.6	

Excess Commuting: 1981-1991 London, Manchester and Birmingham by Socio-Economic Group

		In-commuting									In-commuters subtracted		
		Jobs	Person km	LP person km	Jobs	Person km	LP person km	Mean distance	LP mean distance	Excess	Mean distance	LP mean distance	Excess
1991													
London	Professional	92735	1873740	1601641	25758	1299399	1103239	20.2	17.3	14.5	8.6	7.4	13.2
	Inter	136292	1925390	1577055	23909	1128104	1062413	14.1	11.6	18.1	7.1	4.6	35.5
	Manual	91872	960763	685364	11332	509018	407033	10.5	7.5	28.7	5.6	3.5	38.4
Birmingham	Professional	15954	197187	151607	5629	129604	102384	12.4	9.5	23.1	6.5	4.8	27.2
	Inter	27582	227922	165210	6062	108313	89094	8.3	6.0	27.5	5.6	3.5	36.4
	Manual	35457	223262	135470	5782	84489	68986	6.3	3.8	39.3	4.7	2.2	52.1
Manchester	Professional	16513	220471	173418	5040	145523	117304	13.4	10.5	21.3	6.5	4.9	25.1
	Inter	28652	244607	178242	5301	118637	106488	8.5	6.2	27.1	5.4	3.1	43.0
	Manual	31080	193700	117184	3579	76118	61673	6.2	3.8	39.5	4.3	2.0	52.8
1981													
London	Professional	77365	1591450	1390572	21648	1108583	965342	20.6	18.0	12.6	8.7	7.6	11.9
	Inter	142119	1840940	1518472	21419	1022315	960048	13.0	10.7	17.5	6.8	4.6	31.8
	Manual	127778	1176510	821832	12710	579881	465243	9.2	6.4	30.1	5.2	3.1	40.2
Birmingham	Professional	12898	146527	112191	3953	88805	70053	11.4	8.7	23.4	6.5	4.7	27.0
	Inter	26050	209010	153982	4813	96976	76257	8.0	5.9	26.3	5.3	3.7	30.6
	Manual	43426	253116	159511	6081	91139	75419	5.8	3.7	37.0	4.3	2.3	48.1
Manchester	Professional	13617	155449	120797	3418	91233	73145	11.4	8.9	22.3	6.3	4.7	25.8
	Inter	27918	224759	165787	4197	102046	81036	8.1	5.9	26.2	5.2	3.6	30.9
	Manual	41001	227058	134553	3580	73345	59645	5.5	3.3	40.7	4.1	2.0	51.3
Change 1981-1991													
London	Professional	19.9	17.7	15.2	19.0	17.2	14.3	-1.8	-3.9	15.0	-1.1	-2.5	10.8
	Inter	-4.1	4.6	3.9	11.6	10.3	10.7	9.1	8.3	3.3	4.6	-1.0	11.5
	Manual	-28.1	-18.3	-16.6	-10.8	-12.2	-12.5	13.6	16.0	-4.9	8.2	11.5	-4.6
Birmingham	Professional	23.7	34.6	35.1	42.4	45.9	46.2	8.8	9.2	-1.4	1.4	1.2	0.6
	Inter	5.9	9.0	7.3	26.0	11.7	16.8	3.0	1.3	4.5	5.4	-3.4	18.7
	Manual	-18.4	-11.8	-15.1	-4.9	-7.3	-8.5	8.0	4.0	6.3	7.8	-0.5	8.3

Manchester Professional	21.3	41.8	43.6	47.5	59.5	60.4	17.0	18.4	-4.3	3.8	4.7	-2.6
Inter	2.6	8.8	7.5	26.3	16.3	31.4	6.0	4.8	3.4	4.3	-14.0	39.1
Manual	-24.2	-14.7	-12.9	-0.0	3.8	3.4	12.5	14.9	-3.0	4.1	0.8	3.0