

Online supplementary material A: Spearman's correlation coefficients: economic status and weighted public transport departures by surveyed service days (authors' preparation)

	Proportion of the population entitled to social benefits (Basic income support for jobseekers (SGB II), basic income support in old age (SGB XII), assistance with living expenses (SGB XII) and the Asylum Seekers Benefits Act (AsylbLG))	
Weighted departures (Tue)	Correlation coefficient ρ	0.098**
	Sig. (two-sided) α	<0.001
Weighted departures (Sat)	Correlation coefficient ρ	0.110**
	Sig. (two-sided) α	<0.001
Weighted departures (Sun)	Correlation coefficient ρ	0.131**
	Sig. (two-sided) α	<0.001
Weighted departures per inhabitant (Tue)	Correlation coefficient ρ	0.009
	Sig. (two-sided) α	0.309
Weighted departures per inhabitant (Sat)	Correlation coefficient ρ	0.026**
	Sig. (two-sided) α	0.003
Weighted departures per inhabitant (Sun)	Correlation coefficient ρ	0.065**
	Sig. (two-sided) α	<0.001

** The correlation is significant at the 0.01 level (two-sided)

Note: n = 12,716 (valid for all variables)

Online supplementary material B: Spearman's correlation coefficients: economic status and weighted public transport departures by means of transport and surveyed service days (authors' preparation)

	Proportion of the population entitled to social benefits (Basic income support for jobseekers (SGB II), basic income support in old age (SGB XII), assistance with living expenses (SGB XII) and the Asylum Seekers Benefits Act (AsylbLG))	
Bus departures (Tue)	Correlation coefficient ρ	0.146**
	Sig. (two-sided) α	<0.001
Bus departures (Sat)	Correlation coefficient ρ	0.171**
	Sig. (two-sided) α	<0.001
Bus departures (Sun)	Correlation coefficient ρ	0.212**
	Sig. (two-sided) α	<0.001
Light rail departures (Tue)	Correlation coefficient ρ	-0.030**
	Sig. (two-sided) α	<0.001
Light rail departures (Sat)	Correlation coefficient ρ	-0.024**
	Sig. (two-sided) α	<0.001
Light rail departures (Sun)	Correlation coefficient ρ	-0.048**
	Sig. (two-sided) α	<0.001
Regional train departures (Tue)	Correlation coefficient ρ	0.162**
	Sig. (two-sided) α	<0.001
Regional train departures (Sat)	Correlation coefficient ρ	0.168**
	Sig. (two-sided) α	<0.001
Regional train departures (Sun)	Correlation coefficient ρ	0.162**
	Sig. (two-sided) α	<0.001
Bus departures per inhabitant (Tue)	Correlation coefficient ρ	0.064**
	Sig. (two-sided) α	<0.001
Bus departures per inhabitant (Sat)	Correlation coefficient ρ	0.082**
	Sig. (two-sided) α	<0.001
Bus departures per inhabitant (Sun)	Correlation coefficient ρ	0.127**
	Sig. (two-sided) α	<0.001
Light rail departures per inhabitant (Tue)	Correlation coefficient ρ	-0.065**
	Sig. (two-sided) α	<0.001
Light rail departures per inhabitant (Sat)	Correlation coefficient ρ	-0.060**
	Sig. (two-sided) α	<0.001
Light rail departures per inhabitant (Sun)	Correlation coefficient ρ	-0.067**
	Sig. (two-sided) α	<0.001
Regional train departures per inhabitant (Tue)	Correlation coefficient ρ	0.172**
	Sig. (two-sided) α	<0.001
Regional train departures per inhabitant (Sat)	Correlation coefficient ρ	0.178**
	Sig. (two-sided) α	<0.001
Regional train departures per inhabitant (Sun)	Correlation coefficient ρ	0.173**
	Sig. (two-sided) α	<0.001

** The correlation is significant at the 0.01 level (two-sided)

Note: n = 12,716 (valid for all variables)

Online supplementary material C: Average index and indicator values per spatial cluster with increased and highly increased potential mobility-related risk of exclusion (all 49 clusters) (authors' preparation)

No.	Description	Average index value	Inhabitants (Rank out of 49)	Area in ha	Indicator 1			Indicator 2			Indicator 3			# 4	# 5	# 6	Indicator 7			Indicator 8
					Average number of weighted public transport departures			Average number of weighted public transport departures per 100 inhabitants			Public transport coverage in percent			Average proportion of population receiving social benefits	Average proportion of unemployed population	Private cars per 100 inhabitants	Proportionate location in the service area of on-demand traffic in percent			Proportionate location in the service area of the bike rental system in percent
					Tue	Sat	Sun	Tue	Sat	Sun	Tue	Sat	Sun				Tue	Sat	Sun	
1	Weidenpesch, Heckpfad	49.00	317 (44.)	10	0	0	0	0.0	0.0	0.0	0	0	0	21.4	12.1	35.7	0	0	0	100
2	Lind, Linder Mauspfad Süd	46.25	249 (46.)	6	27	23	19	5.3	4.5	3.7	17	17	17	15.6	12.3	49.4	0	0	0	0
3	Buchheim, Rybniker Str.	46.21	768 (35.)	14	0	0	0	0.0	0.0	0.0	0	0	0	15.5	8.7	38.5	0	0	0	0
4	Stammheim Süd	45.20	2517 (17.)	26	87	82	57	6.0	5.6	3.7	46	46	46	23.7	13.0	34.1	0	0	0	0
5	Lind, Niederkasseler Str.	45.00	73 (49.)	8	30	0	0	82.2	0.0	0.0	100	0	0	18.8	11.1	54.4	0	0	0	0
6	Weidenpesch, Stettiner Str.	44.88	521 (40.)	9	58	48	33	1.3	1.1	0.7	11	11	11	21.4	12.1	35.7	67	0	0	100
7	Vingst	43.84	17518 (1.)	113	205	178	115	5.1	4.2	2.6	73	73	73	27.9	17.9	30.1	0	0	0	0
8	Mülheim, Deutz-Mülheimer-Str. Nord	43.80	3410 (8.)	23	110	94	65	3.0	2.4	1.7	39	39	39	17.9	12.0	29.6	0	96	0	78
9	Mülheim, Bruder-Klaus-Siedlung Ost	43.58	1032 (32.)	15	30	28	20	2.1	2.0	1.3	20	20	20	15.8	9.9	42.8	0	0	0	0
10	Bickendorf, Westend	43.44	2813 (15.)	22	161	151	64	6.6	6.2	2.7	95	95	36	33.1	18.0	25.8	0	0	0	0
11	Ostheim, Buchheimer Weg	43.05	5432 (4.)	43	214	202	134	5.3	4.9	3.4	84	84	84	36.0	22.8	29.2	0	0	0	0
12	Kalk Nord	42.79	9918 (2.)	48	194	146	104	5.1	3.5	2.5	75	75	75	33.3	20.6	24.2	0	0	0	100
13	Flittard Süd	42.61	1332 (11.)	20	64	60	41	5.9	5.5	3.5	40	40	40	21.8	13.9	43.6	0	0	0	0
14	Humboldt Süd	42.22	2399 (19.)	18	123	106	79	6.6	4.4	3.1	89	50	50	23.3	14.5	33.2	0	0	0	100
15	Roggendorf /Thenhoven Ost	41.84	669 (37.)	17	80	69	51	8,0	7.0	5.2	82	82	82	24.0	13.8	39.3	0	0	0	0
16	Lindweiler	41.61	2939 (14.)	39	68	56	53	6.8	5.8	5.4	90	90	90	19.5	13.9	41.9	0	0	0	0
17	Neubrück Ost	41.22	3384 (9.)	22	212	152	106	9.5	6.7	4.7	100	100	100	30.8	16.7	29.7	0	0	0	0
18	Mülheim, Böckingstr.	41.19	4772 (6.)	32	169	156	102	6.1	5.6	3.6	81	81	81	30.7	17.1	28.3	0	0	0	38
19	Niehl, Pasteurstr.	41.10	1352 (28.)	12	92	84	62	12.3	11.2	8.3	100	100	100	37.4	18.9	24.3	0	0	0	58
20	Zündorf, Rosenhügel	41.00	417 (42.)	5	215	215	148	6.2	6.2	4.2	100	100	100	35.8	20.6	30.8	100	0	0	0
21	Bilderstöckchen, Gewerbegebiet	41.00	220 (47.)	21	65	38	0	125.4	74.3	0.0	100	100	0	23.0	14.3	37.1	0	0	0	81
22	Seeberg Nord	40.97	3477 (7.)	25	368	274	238	4.8	3.9	3.1	84	84	84	28.2	14.9	32.3	0	0	0	0
23	Godorf, Buchfinkenstr.	40.93	949 (34.)	22	77	63	12	11.3	9.2	1.8	100	100	45	16.3	11.2	45.5	0	0	0	0

24	Weiler, Weilerweg	40.70	1735 (24.)	13	79	65	41	4.6	4.0	2.3	100	100	100	17.8	11.0	42.2	0	0	0	0
25	Höhenhaus, Am Flachsrosterweg	40.31	3329 (10.)	43	216	206	138	6.2	5.4	3.6	100	84	84	26.1	15.8	35.7	0	0	0	0
26	Urbach, Pappelallee	40.27	1804 (23.)	25	86	78	64	5.4	4.9	4.1	100	100	100	19.2	14.1	42.9	100	0	0	0
27	Mülheim, Stegerwaldsiedlung West	40.04	1610 (26.)	14	184	182	126	11.7	10.6	7.5	43	43	43	24.7	13.8	27.7	0	100	0	100
28	Gremberghoven Süd	40.03	2014 (21.)	34	104	98	64	31.4	31.0	22.0	100	100	100	32.1	19.5	31.9	100	0	0	0
29	Niehl, Amsterdamer Str./Boltensternstr.	39.91	210 (48.)	5	224	224	148	5.5	5.5	3.7	100	100	100	30.4	16.1	26.3	0	0	0	100
30	Mengenich	39.68	4875 (5.)	39	182	165	108	9.1	7.9	4.7	100	100	100	28.4	17.1	34.6	0	0	0	0
31	Niehl, Niehler Straße Süd	39.63	275 (45.)	5	72	53	51	4.5	3.3	3.2	80	80	80	17.8	10.1	32.6	100	0	0	100
32	Eil Süd/Urbach Nord	39.61	3139 (12.)	27	100	89	66	6.1	5.4	4.1	100	100	100	20.4	14.0	38.9	100	0	0	0
33	Dünnwald, Embergweg	39.58	1177 (30.)	19	168	165	112	8.6	8.4	5.8	89	89	89	25.6	15.4	37.9	0	0	0	0
34	Kalk, Kapellenstr.	39.58	566 (39.)	6	222	193	126	5.2	3.3	2.2	100	33	33	20.6	10.9	27.3	0	0	0	67
35	Chorweiler Nord	39.54	8990 (3.)	60	383	275	241	8.2	6.6	5.4	100	100	100	34.0	17.4	28.1	0	0	0	0
36	Ossendorf Süd	39.54	2658 (16.)	26	160	153	97	5.6	5.3	3.2	92	92	65	17.6	12.1	33.5	8	0	0	100
37	Dünnwald, Auguste-Kowalski- Str.	39.49	3129 (13.)	27	131	138	83	11.0	11.6	7.0	100	100	100	29.5	16.1	34.7	0	0	0	0
38	Bickendorf, Vitalisstr.	39.34	1469 (27.)	15	215	154	107	21.2	16.1	11.4	80	80	80	19.6	14.0	33.1	0	0	0	100
39	Holweide, Grunerstr.	39.24	1657 (25.)	14	259	234	148	7.2	6.2	3.2	100	100	100	21.7	13.6	35.2	0	0	0	0
40	Wahnheide, Guntherstr.	39.08	2022 (20.)	22	69	56	42	5.6	4.6	3.5	77	77	77	15.2	12.1	50.3	0	0	0	0
41	Buchheim, Gronauer Str.	39.02	1839 (22.)	14	165	153	107	11.9	11.1	7.8	100	100	100	27.9	15.8	34.1	0	0	0	0
42	Porz Süd	38.94	1050 (31.)	7	273	277	214	3.5	3.5	2.6	86	86	86	18.0	12.1	37.4	100	0	0	0
43	Grenge, Akazienweg	38.85	1202 (29.)	11	102	92	65	4.5	4.0	2.8	100	100	100	17.6	12.5	43.9	100	0	0	0
44	Buchheim, Ackerstr.	38.82	2415 (18.)	23	626	600	476	12.2	11.2	8.3	96	96	96	27.7	16.6	27.7	0	0	0	0
45	Worringen, Dornstr.	38.69	725 (36.)	13	49	43	32	8.4	5.4	4.0	100	92	92	16.0	10.8	49.0	0	0	0	0
46	Worringen, Kurzer Damm	38.58	360 (43.)	7	81	63	40	11.4	8.7	5.3	100	100	100	17.4	11.0	47.5	0	0	0	0
47	Gremberg, Lohmarer Str.	38.54	1026 (33.)	9	144	129	93	11.9	10.7	7.7	89	89	89	23.6	14.1	32.8	0	0	0	100
48	Ostheim, Waldbadviertel West	38.07	419 (41.)	9	48	43	25	7.4	6.5	3.8	100	100	100	16.8	9.4	36.6	0	0	0	0
49	Lind, Am Linder Kreuz	37.95	666 (38.)	14	69	60	54	20.5	8.0	7.3	100	100	100	18.8	11.1	54.4	0	0	0	0