

## Supplementary file

**Table S1.** Main characteristics of deprivation indices.

#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
1	Zadnik et al. (2006) Deprivation Index (DI)[1]	Slovenia	Census (192 municipality)	An average population of 10,304		Bayesian factor analysis	
2	Meijer, M. et al. (2013) Danish Deprivation Index (DANDEX) [2]	Denmark	Census (parish)	A median population of 2,545		Principal components analysis (PCA)	
3	Benmarhnia et al. (2014) Spatial Environmental Deprivation (SED) Index[3]	France	Ecological data (96 departments)	N/A		Principal components analysis (PCA)	
4	Havard et al. (2008) Havard Index[4]	France	Census (190 census blocks)	N/A		Principal components analysis (PCA)	
5	Rey et al. (2009) French Deprivation Index (FDep) FDep99 Index[5]	France	1999 Census (30,500 aggregated units for statistical information (IRIS)) / the tax authority's 2001 household income data – Register-based data	A median population of 500	FDep09[6]	Principal components analysis (PCA)	

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
6	Lasbeur et al. (2006) Deprivation Index [7]	France	1999 Census (2,715 aggregated units for statistical information (IRIS))	2,300 people	Laloue et al. (2013)[8]	Principal components analysis (PCA)	
7	Hagedoorn et al. (2016) Municipal Level Deprivation Index[9]	Belgium	2001 Census (Community)	N/A		Equal weighting	
8	Splichalova et al. (2007) Index of Socio-Economic Deprivation (SESDI) INDEX1[10]	Czech Republic	2001 Census(52,941 census enumeration districts (EDs))	400 inhabitants		Equal weighting	
9	Winkleby et al (2007) Neighborhood-Level Deprivation Index[11]	Sweden	1995 Swedish national database – Register-based data (?) (small area market statistics (SAMS))	1000–2000 people		Principal components analysis (PCA)	

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
10	Ruiz-Ramos et al. (2006) Socio-Economic Synthetic Index [12]	Spain (Seville)	2001 Census (510 census tracts)	N/A		Principal components analysis (PCA)	
11	Salcedo et al. (2012) Deprivation Index (DI) [13]	Spain (Barcelona)	2001 Spanish Census of Population and Housing (CPH) (2,978 census tracts)	A median population of 1,085.50		Pena's method (P2 Distance or DP2 method)	
12	Dominguez-Berjon et al. (2008) MEDEA Index [14]	Spain (Barcelona, Bilbao, Madrid, Seville and Valencia)	2001 Census (census section)(2,358 in Madrid, 1,491 in Barcelona, 598 in Valencia, 510 in Seville and 288 in Bilbao)	An average of 1000 people		Principal components analysis (PCA)	
13	Compés Dea et al. (2018) Deprivation Index [15]	Spain (Aragon)	2011 Census (123 Basic Healthcare Areas (BHAs))	From 991 to 34,404 people		Principal components analysis (PCA)	
14	Duque et al. (2019) Spanish Deprivation Index (SDI) [16]	Spain	2011 Census (35,917 enumeration districts)	A median population of 19,910 ( from 2,163 to 62,260 people)		Principal components analysis (PCA)	

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
15	Colls et al. (2020) Composed Socioeconomic index (CSI) [17]	Spain (Catalonia)	2011 Census (369 basic healthcare areas (BHAs))	A median population of 19,910 ( from 2,163 to 62,260 people)		Principal components analysis (PCA)	
16	Álvarez-del Arco et al. (2013) Deprivation Index (DI) [18]	Spain (Madrid and Barcelona)	2001 Census (Madrid(2358) Barcelona(1491) census tracts)/ Register-based data	A median population of approximately 1000 inhabitants		Exploratory factor analysis (EFA)	
17	Ocaña-Riola et al. (2008) Material Deprivation Index [19]	Spain (Andalusia and Catalonia)	1991Census (3572 census sections 1556 in Andalusia and 2016 in Catalonia)/ Register-based data	N/A		Principal components analysis (PCA)	
18	Benach et al. (1999) Deprivation Index [20]	Spain	1991 Census	3,500 inhabitants		Exploratory factor analysis	
19	Sánchez-Cantalejo et al. (2008) Deprivation Index [21]	Spain	2001 Population and Housing Census (8,108 municipalities)	N/A		Principal components analysis (PCA)	

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
20	García-Gil et al. (2004) Social Index [22]	Spain (Seville)	1991 Census (32 basic health zones ( BHZs), 85 urban neighborhoods)	N/A		Equal weighting	
21	Esnaola et al. (2006) Deprivation Index [23]	Spain (the Basque Country)	1996 Census (census section)	An average 1,257 of inhabitants		Principal components analysis (PCA)	
22	Panczak et al. (2012) Swiss Neighborhood Index of Socio-Economic Position (Swiss-SEP) [24]	Switzerland	2000 Census	N/A		Principal components analysis (PCA)	
23	Juhász et al. (2010) Hungarian Deprivation Index [25]	Hungary	2001 Census (3152 Municipalities (LAU2)) / Register-based (tax) data	Mean: 3,253 people		Principal components analysis (PCA)	
24	Caranci et al. (2010) Italian Deprivation Index [26]	Italy	2001 General Census (352,605 census tracts)	An average 169 of inhabitants	Rosano et al.(2020)[27]	Equal weighting	
25	Ivaldi et al. (2001) Genoa Deprivation Index [28]	Italy (Genoa)	1991 Census (71 “Unità Urbanisticas” (UUs))	9,557 individuals, min: 1,143, max: 30,981		Equal weighting	
26	Cadum et al. (1999) National Deprivation Index [29]	Italy	1991 Census (8,100 municipalities)	N/A		Equal weighting	

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
27	Michelozzi et al. (1998) Deprivation Index [30]	Italy	Census (6,108 census tracts)	An average of 480 inhabitants		Principal components analysis (PCA) Equal weighting	
28	Petrelli et al. (2006) Deprivation Index [31]	Italy(Turin)	1991 Census (neighbourhood)	A median population of 41,139 inhabitants			
29	Jordan et al. (2004) Index of Multiple Deprivation 2000 [32]	England	2000 Census (34,400 Lower Super Output Areas (LSOAs))	1,519 people (the mean population size )	IMD04, IMD07, IMD10, IMD15, IMD19 [33]	Revealed preferences	available
30	Townsend et al. (1988) Townsend Material Deprivation Score [34]	England	1981 Census (9265 census wards)	N/A		Equal weighting	
31	Jarman (1983) Jarman Score [35]	England	1981 Census (postcode sectors(PCSs))	N/A		Expert weighting	available
32	Carstairs et al. (1991) Carstairs Index [36]	Scotland	1981 Census (9265 census wards)	N/A		Equal weighting	
33	Simpson et al. (1994) Index of Local Conditions (ILC) [37]	England	1991 Census ( enumeration districts (EDs))	N/A	Index of Local Deprivation 1998 (ILD)[38]	Equal weighting	available
34	Richardson et al. (2010) Multiple Environmental Deprivation Index (MEDix) [39]	England	Ecological data (10,654 area statistic wards)	5,518 people		Theory-based weighting	available

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
35	Noble et al. (2001) Northern Ireland Multiple Deprivation Measure (NIMDM) [40]	Ireland	1984 Census (electoral ward)	2,000 people	NIMDM05, NIMDM10, NIMDM17[41]	Revealed preferences	available
36	Kelly et al.(1997) Small Area Health Research Unit (SAHRU) Deprivation Index [42]	Ireland	1991 Census (3,409 electoral divisions(EDs))	N/A	SAHRU Index 2006, 2011, 2016[43]	Principal components analysis (PCA)	available
37	Haase, Pratschke and Gleeson (2012) All-Island Deprivation Index [44]	Ireland	2011 Census (23,025 small areas (SAs))	N/A		Confirmatory factor analysis(CFA)	available
38	Welsh Index of Multiple Deprivation (WIMD) (2000) [45]	England (Welsh)	2000 Census (1,909 Lower-layer Super Output Areas (LSOAs))	1,600 people	WIMD04, WIMD05, WIMD08, WIMD09, WIMD10, WIMD12, WIMD14, WIMD17, WIMD19[46]	Revealed preferences	available
39	Scottish Index of Multiple Deprivation (SIMD) (2004) [47]	Scotland	Register-based data (6 976 data zones)	700-800 people	SIMD06, SIMD09, SIMD12, SIMD16, SIMD20[48]	Revealed preferences	available

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
40	Salmond et al. (2012) New Zealand's Deprivation Index (NZDep) [49]	New Zealand	Census (meshblock)	Median population size is approximately 90 persons	NZDep1996, NZDep2001, NZDep2000, NZDep2006, NZDep2013, NZDep 2018[50]	Principal components analysis (PCA)	available
41	Ross index/Socio-Economic Indexes for Areas (SEIFA) The Index of Relative Socio-economic Disadvantage (IRSD) (1986) [51]	Australia	1986 Census (Statistical Area Level 3(SA3))	Between 30,000 and 130,000 people	SEIFA1991, SEIFA1996,SEIFA2001,SEIFA2006,SEIFA2011,SEIFA2016[52]	Principal Component Analysis (PCA)	available
42	Bell et al. (2007) Vancouver Area Neighborhood Deprivation Index (VANDIX) [53]	Canada (Vancouver)	2001 Census (4000 dissemination areas (DAs))	400-700 people		Expert weighting	available
43	Langlois et al. (1996) General Deprivation Index (GDI) [54]	Canada (Montreal)	1996 Census (census tract)	N/A		Principal components analysis (PCA)	
44	Pampalon et al. (2000) Deprivation Index for Health and Welfare Planning for Quebec (DIHWPQ) [55]	Canada (Quebec)	1991 Census (enumeration area (EA))	550 people	1996 Quebec index(QI), 2001QI, 2006QI[56]	Principal components analysis (PCA)	available

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
45	Mustard et al. (1995) Socio-Economic Risk Index (SERI)(1995)/Socio-economic Factor Index (SEFI) [57]	Canada (Manitoba)	1986 Census (1,825 enumeration areas)	Maximum of 440 people	SEFI91, SEFI96, SEFI01, Metge et al. (2009) [58] SEFI-2, Bell et al. (2007) [59] Order Weighted Average (OWA) index	Multiple linear regression	available
46	Butler et al. (2012) Social Deprivation Index (SDI) [60]	USA	2005–2009 American Community Survey (ACS) 5-year estimates (census tract)	4,000 residents		Principal components analysis (PCA)	available
47	Andrews et al. (2020) Neighborhood Deprivation Index (NDI) [61]	USA	2010 Census (census tract)	4,823 -3,532 people		Principal components analysis (PCA)	
48	Singh et al. (2002) Factor-Based Area Socioeconomic Index [62]	USA	2010 Census (2,952 counties)	150,000-500,000 people	Kind et al.(2018)[63] Area deprivation index	Principal components analysis (PCA)	available
49	Diez-Roux et al. (2001) Neighborhood Socioeconomic Index [64]	USA	2010 Census (census tract)	4,000 residents		Equal weighting	
50	Sampson et al. (1997) Deprivation Index [65]	USA	1990 Census (343 "neighborhood clusters" (NCs))	8,000 people		Principal components analysis (PCA)	

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#	Name of index/reference (year of publication)	Country (area of a country )	Data source (reporting unit)	Population per Unit (average)	Updates (Author/year of publication)	Weighting method	Website and/or supplementary documentation
51	Perkins et al. (2012) Health Opportunity Index (HOI) [66]	USA	Census (census tract)	4,000 residents		Principal components analysis (PCA)	available
52	Messer et al. (2006) Deprivation Index [67]	USA	2000 Census (census tract)	4,000 residents		Principal components analysis (PCA)	
53	López-De Fede et al.(2016) Palmetto Small-Area Deprivation Index (Palmetto SADI) [68]	USA (Palmetto)	2000 Census (424 ZIP Code Tabulation Areas (ZCTAs))	N/A		Equal weighting	
54	Brokamp et al. (2016) Deprivation Index [69]	USA	2006-2010 American Community Survey (census tract)	4,000 residents	a 2015 Deprivation Index[70]	Principal components analysis (PCA)	
55	Wheeler et al. (2019) Neighborhood Deprivation Index [71]	USA	2005–2009 American Community Survey (census tract)	4,000 residents		Bayesian factor analysis	
56	Kolak et al. (2020) Multidimensional Social Determinants of Health (SDOH) index [72]	USA	American Community Survey (71,901 census tracts)	2,500 and 8,000 persons		Principal components analysis (PCA)	
57	Dubowitz et al. (2008) Neighborhood Socioeconomic Status (NSES) Index [73]	USA	American Community Survey (census tract)	4,000 residents		Exploratory factor analysis	

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58	Peyvandi et al. (2020) Environmental Exposure Index (EEI) [74]	USA (California)	California Communities Environmental Health Screening Tool, version 3.0 (CalEnviroScreen) (census tract)	N/A		Equal weighting	
59	Maizlish et al. (2019) California Healthy Places Index (HPI) [75]	USA (California)	2011-2015 American Community Survey (census tract)	4,000 residents		Weighted Least Squares Regression	available
60	Acevedo-Garcia et al. (2014) Child Opportunity Index [76]	USA	Child Opportunity Index 2.0 database (census tract)	N/A		Equal weighting	

**Table S2.** Indicators of deprivation measures.

#	Name of index/reference (year of publication)	Variables/subdimensions	Domains/dimensions	Type of deprivation
1	Zadnik et al. (2006) Deprivation Index (DI) [1]	<u>Employment/Occupation</u> Number of unemployed persons per 100 inhabitants Average earning per capita <u>Education</u> Number of graduate students per 100 inhabitants in age group 20–24 Number of inhabitants having more than secondary school per 100 inhabitants Number of inhabitants having at least primary school per 100 inhabitants <u>Family structure/ Demographics</u> Natural increase per 1000 inhabitants Number of families living with both parents per 100 families <u>Housing</u> Number of households owing its own bathroom per 100 households Number of households with central heating per 100 households Number of members of an average households	Employment/Occupation Education Family structure/ Demographics Housing	Social, Material
2	Meijer M. et al. (2013) Danish Deprivation Index (DANDEX) [2]	<u>Transportation</u> Proportion of households(PH) with no car <u>Housing</u> PH being rented <u>Employment/Occupation</u> Proportion of inhabitants( PI) on unemployment benefits PI with manual profession <u>Family structure/ Demographics</u> PI living alone with child/children <u>Social environment</u> PI with criminal record <u>Education</u> PI with basic education	Transportation Housing Employment/Occupation Family structure/ Demographics Social environment Education Income and Wealth	Social, Material

3	Benmarhnia et al. (2014) Spatial Environmental Deprivation (SED) Index [3]	<p><u>Income and Wealth</u>            PI with low disposable income</p> <p><u>Air quality</u>            Mean of PM10 yearly concentrations for all monitoring stations            Proportion of the urban population who lives in areas exceeding who standards for SO<sub>2</sub> daily concentrations            Proportion of the urban population who lives in areas exceeding who standards for O<sub>3</sub> daily concentrations            Proportion of the urban population who lives in areas exceeding who standards for PM10 yearly concentrations</p> <p><u>Water quality</u>            Percentage of drinking water bacterial inspections that found non-conformity with French guidelines</p> <p><u>Industrial risks</u>            Number of industrial facilities presenting medium-level environmental risks per capita            Number of industrial facilities presenting high-level environmental risks per capita            Number of sites with polluted soil per capita            Percentage of industrial facilities mandated to have a safety plan that have actually registered and approved safety plans            Proportion of cities with at least one hazardous industrial facility</p> <p><u>Noise</u>            Number of airport noise plans per capita</p> <p><u>Indoor environment</u>            Percentage of housing units built before 1949            Number of orders dealing with insalubrious housing per capita            Mean radon concentrations measured in public buildings (standardized measurement)</p>	Air quality Water quality Industrial risks Noise Indoor environment	Environmental
4	Havard et al. (2008) Havard Index [4]	<p><u>Employment/Occupation</u>            Blue-collar workers in the labour force            People in the labour force with insecure jobs            People in the labour force with stable jobs            Unemployed people in the labour force</p>	Employment/Occupation Housing Transportation Education	Social, Material

		<p>People in the labour force unemployed for more than 1 year</p> <p><u>Housing</u></p> <p>Primary residences that are houses or farms</p> <p>Primary residences that are multiple dwelling units</p> <p>Primary residences with more than one person per room</p> <p>Non-owner-occupied primary residences</p> <p>Subsidised housing among all primary residences</p> <p>Mean number of people per room</p> <p><u>Transportation</u></p> <p>Households without a car</p> <p>Households with two or more cars</p> <p><u>Education</u></p> <p>People aged 15 years or older with general or vocational maturity certificates</p> <p>People aged 15 years or older with at least a lower tertiary education</p> <p>People aged 15 years or older who did not go beyond an elementary education</p> <p><u>Family structure/ Demographics</u></p> <p>Single-parent families</p> <p><u>Income and Wealth</u></p> <p>Median income per consumption unit (in euros per year)</p> <p><u>Immigration</u></p> <p>Foreigners in the total population</p>	<p>Family structure/ Demographics Income and Wealth</p>	
5	<p>Rey et al. (2009) French Deprivation Index (FDep) FDep99 Index [5]</p>	<p><u>Income and Wealth</u></p> <p>Median household income</p> <p><u>Education</u></p> <p>Percentage high school graduates in the population aged 15 years and older</p> <p><u>Employment/Occupation</u></p> <p>Percentage blue-collar workers in the active population</p> <p>Unemployment rate</p>	<p>Income and Wealth Education Employment/Occupation</p>	<p>Social, Material</p>
6	<p>Lasbeur et al. (2006) Deprivation Index [7]</p>	<p><u>Employment/Occupation</u></p> <p>Proportion of workers (%)</p> <p>Proportion of executives (%)</p>	<p>Employment/Occupation Education Transportation</p>	<p>Social, Material</p>

		Share of employments with contrat à durée indéterminée (CDI): contracts with an unlimited term (%) Unemployment rate (%) <u>Education</u> Proportion of people having a primary level of studies (%) <u>Transportation</u> Share of households with no car (%) <u>Family structure/ Demographics</u> Proportion of families single parents (%) <u>Housing</u> Average number of people per room <u>Immigration</u> Proportion of people born abroad (%)	Family structure/ Demographics Housing Immigration	
7	Hagedoorn et al. (2016) Municipal Level Deprivation Index [9]	<u>Employment/Occupation</u> Percentage unemployed among men aged 18–64 in the municipality <u>Transportation</u> Percentage of households without a car <u>Education</u> Percentage inhabitants aged 25–64 who are lower educated (lower secondary education or less)	Employment/Occupation Transportation Education	Social, Material
8	Splichalova et al. (2007) Index of Socio-Economic Deprivation (SESDI) INDEX1 [10]	<u>Housing</u> Other than detached houses (%) Density of housing (m2/person) No cottage houses (%) <u>Transportation</u> No car (%) <u>Communication</u> No phone (%) <u>Employment/Occupation</u> Unemployment (%) <u>Family structure/ Demographics</u> Single women (%) Single men (%) <u>Education</u>	Housing Transportation Communication Employment/Occupation Family structure/ Demographics Education	Social, Material

9	Winkleby et al. (2007) Neighborhood-Level Deprivation Index [11]	<p>Basic education (%)</p> <p><u>Education</u></p> <p>Low educational status (&lt;10 years of formal education)</p> <p><u>Employment/Occupation</u></p> <p>Unemployment (not employed, excluding full-time students, those completing compulsory military service, and early retirees)</p> <p><u>Income and Wealth</u></p> <p>Low income (income from all sources, including that from interest and dividends, defined as less than 50% of individual median income)</p> <p>Social welfare recipient (receiving social welfare support during 1995)</p>	<p>Education</p> <p>Employment/Occupation</p> <p>Income and Wealth</p>	<p>Social,</p> <p>Material</p>
10	Ruiz-Ramos et al. (2006) Socio-Economic Synthetic Index [12]	<p><u>Education</u></p> <p>Low level of education (people who cannot read or write or with less than 5 years of study / population aged 16 and over)</p> <p><u>Employment/Occupation</u></p> <p>Unemployed (population aged 16 and over unemployed / population aged 16 and over active)</p> <p>Unskilled workers (employed population aged 16 and over unskilled / employed population aged 16 and over)</p>	<p>Education</p> <p>Employment/Occupation</p>	<p>Social,</p> <p>Material</p>
11	Salcedo et al. (2012) Deprivation Index (DI) [13]	<p><u>Employment/Occupation</u></p> <p>Unemployment rate</p> <p>Manual workers</p> <p>Temporary workers</p> <p>Activity rate</p> <p><u>Education</u></p> <p>Percent with low educational level</p> <p>University education</p> <p><u>Family structure/Demographics</u></p> <p>Mono-parental homes</p> <p><u>Immigration</u></p> <p>Immigrants</p> <p><u>Housing</u></p> <p>Homes without heating</p> <p>No toilet/bathroom in the home</p>	<p>Employment/Occupation</p> <p>Education</p> <p>Family structure/ Demographics</p> <p>Immigration</p> <p>Housing</p> <p>Communication</p> <p>Social environment</p> <p>Green space</p> <p>Noise</p> <p>Air quality</p>	<p>Social,</p> <p>Material,</p> <p>Environmental</p>

		<p><u>Communication</u> Bad communications</p> <p><u>Social environment</u> Vandalism/crime Dirty street</p> <p><u>Green space</u> Few green areas</p> <p><u>Noise</u> Exterior noise</p> <p><u>Air quality</u> Contamination/bad smells</p>		
<b>12</b>	Dominguez-Berjon et al. (2008) MEDEA Index [14]	<p><u>Employment/Occupation</u> Manual workers 16 years : percentage of people aged 16 or over employed, who are manual workers Unemployment 16 years: percentage of unemployed persons aged 16 or over Casual wage earners 16 years: percentage of employed persons aged 16 or more years they are temporary employees</p> <p><u>Education</u> Total insufficient education: percentage of people aged 16 and over who are illiterate or have incomplete primary education Insufficient education in young people: percentage of people aged 16-29 who are illiterate or have incomplete primary education</p>	Employment/Occupation Education	Social, Material
<b>13</b>	Compés Dea et al. (2018) Deprivation Index [15]	<p><u>Employment/Occupation</u> %unemployment %eventual workers</p> <p><u>Education</u> % insufficient education 16-64 years old % insufficient education in foreign population</p>	Employment/Occupation Education	Social, Material
<b>14</b>	Duque et al. (2019) Spanish Deprivation Index (SDI) [16]	<p><u>Employment/Occupation</u> Manual and temporary workers Unemployment</p> <p><u>Education</u> Population with insufficient education</p>	Employment/Occupation Education Communication	Social, Material

15	Colls et al. (2020) Composed Socioeconomic Index (CSI) [17]	<p>Young population (aged 16 to 29 years) with insufficient education</p> <p><u>Communication</u></p> <p>Dwellings without access to the internet</p> <p><u>Health</u></p> <p><u>Drug benefits</u></p> <p>Population exempt from pharmaceutical copayment</p> <p><u>Mortality</u></p> <p>Mortality prior to 75 years</p> <p><u>Hospitalization</u></p> <p>Potentially avoidable hospitalizations(number of potentially avoidable hospitalizations for COPD, heart failure, and diabetes complications/Population older than 19 years)</p> <p><u>Income and Wealth</u></p> <p>Income below € 18,000</p> <p>Income above € 100,000</p> <p><u>Employment/Occupation</u></p> <p>Manual occupations</p> <p><u>Education</u></p>	<p>Health:</p> <ul style="list-style-type: none"> <li>• Drug benefits</li> <li>• Mortality</li> <li>• Hospitalization</li> </ul> <p>Income and Wealth</p> <p>Employment/Occupation</p> <p>Education</p>	<p>Social, Material, Health</p>
16	Álvarez-del Arco et al. (2013) Deprivation Index (DI) [18]	<p>Insufficient education level</p> <p><u>Employment/Occupation</u></p> <p>Unemployment rate or activity rate</p> <p><u>Education</u></p> <p>Percentage of the illiterate population + without studies or with third grade studies</p> <p><u>Housing</u></p> <p>Average number of rooms</p> <p>Average surface of a house</p> <p>Percentage of homes without heating</p> <p>Percentage of population in dwellings without heating</p> <p>Percentage of population in rental housing</p> <p>Second hand home price</p> <p><u>Transportation</u></p> <p>Percentage of population with only one car</p> <p>Percentage of the population that has more than one car</p>	<p>Employment/Occupation</p> <p>Education</p> <p>Housing</p> <p>Transportation</p> <p>Immigration</p>	<p>Social, Material</p>

17	Ocaña-Riola et al. (2008) Material Deprivation Index [19]	<p>Number of cars</p> <p><u>Immigration</u></p> <p>Immigration rate</p> <p><u>Employment/Occupation</u></p> <p>Manual labourers (the number of workers occupied as skilled construction workers, skilled mine and metal workers, skilled workers in other industries, operators of facilities and machinery, unskilled workers and other employees in the services industry per 100 people in employment)</p> <p>Unemployment (the number of unemployed per 100 persons in the labour force)</p>	Employment/Occupation Education	Social, Material
18	Benach et al. (1999) Deprivation Index [20]	<p><u>Education</u></p> <p>Illiteracy (the number of illiterate individuals per 100 people over the age of 10 years)</p> <p><u>Education</u></p> <p>Illiteracy (percentage of illiterate people in the population over age 10)</p> <p><u>Employment/Occupation</u></p> <p>Social class (the number of persons with unskilled occupations divided by all people who ever worked)</p> <p>Unemployment (percentage of unemployed in the population aged 15 to 64 years)</p> <p><u>Housing</u></p> <p>Overcrowding (percentage of households with more than one person per room)</p>	Education Employment/Occupation Housing	Social, Material
19	Sánchez-Cantalejo et al. (2008) Deprivation Index [21]	<p><u>Employment/Occupation</u></p> <p>Number of unemployed per 100 active people</p> <p>Number of artisans and skilled workers in the manufacturing, construction and mining industries, operators of installations and machinery, installers and fitters and non-skilled workers per 100 workers</p> <p><u>Education</u></p> <p>Number of illiterate persons above the age of 10 per 100 people above the age of 10</p> <p><u>Transportation</u></p> <p>Number of homes without access to a vehicle per 100 homes</p> <p><u>Family structure/Demographics</u></p>	Employment/Occupation Education Transportation Family structure/ Demographics Immigration	Social, Material

		Number of persons older than 64 divided by the number of persons younger than 15		
		<u>Immigration</u>		
		Number of foreigners between 16 and 49 who lived abroad in 1991 per 100 foreigners		
<b>20</b>	García-Gil et al. (2004) Social Index [22]	<u>Employment/Occupation</u> Unemployment among males aged 16 + years	Employment/Occupation Education	Social, Material
		<u>Education</u>		
		The rate of illiteracy, standardized by age, in females (10–64 years of age)		
		The percentage of females (25–64 years of age) in work and of at least secondary-level education (standardized by age)		
		The percentage of males and females (aged 25 + years) with university-level education		
<b>21</b>	Esnaola et al. (2006) Deprivation Index [23]	<u>Employment/Occupation</u> Proportion in unemployment Proportion of unskilled manual workers	Employment/Occupation Education Housing	Social, Material
		<u>Education</u>		
		Proportion with primary or lower educational level		
		<u>Housing</u>		
		Proportion of low-comfort housing		
<b>22</b>	Panczak et al. (2012) Swiss Neighborhood Index of Socio-Economic Position (Swiss-SEP) [24]	<u>Education</u> Proportion households headed by a person with primary education or less	Education Employment/Occupation Housing	Social, Material
		<u>Employment/Occupation</u>		
		Proportion headed by a person in manual or unskilled occupation		
		<u>Housing</u>		
		Median rent per square meter		
		The mean number of persons per room		
<b>23</b>	Juhász et al. (2010) Hungarian Deprivation Index [25]	<u>Income and Wealth</u> Gross income serving as the basis for the personal income tax per person as a member of the permanent population	Income and Wealth Education Employment/Occupation	Social, Material
		<u>Education</u>	Family structure/ Demographics	
		Proportion of the population with basic education and illiteracy in the total population older than 15 years	Housing	
		<u>Employment/Occupation</u>	Transportation	

		Unemployment (as a proportion of total population of productive age)		
		<u>Family structure/Demographics</u>		
		One-parent families (single mothers with children, as a proportion of families)		
		Large families (parents with three or more children, as a proportion of families)		
		<u>Housing</u>		
		Density of housing (persons per room)		
		<u>Transportation</u>		
		Car (passenger cars per 100 inhabitants)		
<b>24</b>	Caranci et al. (2010) Italian Deprivation Index [26]	<u>Education</u>	Education	Social,
		Low level of education	Employment/Occupation	Material
		<u>Employment/Occupation</u>	Housing	
		Unemployment	Family structure/	
		<u>Housing</u>	Demographics	
		Non-home ownership		
		Overcrowding		
		<u>Family structure/Demographics</u>		
		One parent family		
<b>25</b>	Ivaldi et al. (2001) Genoa Deprivation Index [28]	<u>Housing</u>	Housing	Social,
		House ownership (% of households living in rented houses)	Employment/Occupation	Material
		Household overcrowding(average number of occupants per room)	Education	
		<u>Employment/Occupation</u>		
		Unemployment rate (% of unemployed people compared to total workforce)		
		<u>Education</u>		
		Low education level (% of people with a degree lower or equal to middle school diploma)		
<b>26</b>	Cadum et al. (1999) National deprivation index [29]	<u>Education</u>	Education	Social,
		Proportion of the population educated with an elementary school certificate	Housing	Material
		<u>Housing</u>	Employment/Occupation	
		Proportion of rented dwellings	Family structure/	
		Proportion of occupied dwellings without bathroom inside the house	Demographics	

		<u>Employment/Occupation</u> Proportion of the active population unemployed or seeking their first job		
		<u>Family structure/Demographics</u> Proportion of single-parent families with children		
27	Michelozzi et al. (1998) Deprivation Index [30]	<u>Education</u> Percentage of people by educational level <u>Employment/Occupation</u> Percentage of people employed by occupational category Percentage of unemployed men of working age <u>Family structure/Demographics</u> Percentage of one person families Percentage of families with five or more persons <u>Housing</u> Crowding index (persons/room), Percentage of dwellings rented or owned	Education Employment/Occupation Family structure/ Demographics Housing	Social, Material
28	Petrelli et al. (2006) Deprivation Index [31]	<u>Education</u> Low educational level (primary school or less) <u>Employment/Occupation</u> Manual job <u>Housing</u> Rented dwellings Dwellings without an indoor bathroom Household crowding <u>Family structure/Demographics</u> Single-parent households with children	Education Employment/Occupation Housing Family structure/ Demographics	Social, Material
29	Jordan et al. (2004) Index of Multiple Deprivation 2000 [32]	<u>Income and Wealth</u> Adults in income support households Children in income support households Adults in income based job seekers allowance households Children in income based job seekers Allowance households Adults in family credit households Children in family credit households Adults in disability working allowance households	Income and Wealth Employment/Occupation Health: <ul style="list-style-type: none"> <li>• Mortality</li> <li>• Disability</li> <li>• Birth rate</li> </ul> Education Housing Build environment	Social, Material, Health, Environment al

Children in disability working allowance households  
Non-earning, non is pensioner and disabled council tax  
Benefit recipients

Employment/Occupation

Unemployment claimant counts  
People out of work but in TEC delivered  
Government supported training  
People aged 18–24 on New Deal options  
Incapacity benefit recipients of working age  
Severe Disablement Allowance claimants of working age

Health

Mortality

Comparative mortality ratio for men and women aged under 65

Disability

People receiving attendance allowance or disability living allowance  
People of working age receiving incapacity Benefit or Severe Disablement Allowance  
Age-sex standardized ratio of Limiting Long Term Illness (LLTI)

Birth rate

Proportion of births of low birth weight

Education

Working age adults with no qualifications  
Children aged 16+ not in full time education  
Proportion of 17–19 year olds who have not successfully Applied to higher education  
KS2 primary school performance data  
Primary school children with English as an additional language  
Absenteeism at primary level

Housing

Homeless households in temporary accommodation  
Household overcrowding  
Poor private sector housing

Build environment

30	Townsend et al. (1988) Townsend Material Deprivation Score [34]	<p>Access to a post office  Access to food shops  Access to a GP  Access to a primary school</p> <p><u>Employment/Occupation</u>  Percentage of economically active residents aged 16-59 or 16-64 who are unemployed</p> <p><u>Housing</u>  Percentage of private households that are not owner occupied  Percentage of private households with &gt;1 person per room</p> <p><u>Transportation</u>  Percentage of private households that do not possess a car</p>	Employment/Occupation Housing Transportation	Material
31	Jarman (1983) Jarman Score [35]	<p><u>Family structure/Demographics</u>  Families of non-married couples (less stable family groups)  Children aged &lt;5  Single parent households  Elderly people living alone</p> <p><u>Employment/Occupation</u>  Unemployment  Lower social classes</p> <p><u>Immigration</u>  Ethnic minorities (people born outside United Kingdom)</p> <p><u>Housing</u>  Overcrowded households  Poor housing</p> <p><u>Mobility</u>  Highly mobile people (percentage changing house in a year)</p>	Family structure/ Demographics Employment/Occupation Housing Mobility Immigration	Social, Material
32	Carstairs et al. (1991) Carstairs Deprivation Index [36]	<p><u>Employment/Occupation</u>  Male unemployment (economically active males aged 16–74 seeking or waiting to start work, as a proportion of all economically active males 16–74)</p> <p>Low social class (persons living in households with the</p>	Employment/Occupation Housing Transportation	Material

		household reference person (HRP) (aged 16–74) in social class IV or V, as a proportion of all people in households with an economically active HRP (16–74))		
		<u>Housing</u>		
		Overcrowding (persons living in households at a density of more than one person per room, as a proportion of all people in households)		
		<u>Transportation</u>		
		No car ownership (persons living in households with no car, as a proportion of all people in private households)		
<b>33</b>	Simpson et al. (1994) Index of Local Conditions (ILC) [37]	<u>Employment/Occupation</u>	Employment/Occupation	Social,
		Unemployment	Education	Material,
		Long-term unemployment	Housing	Health,
		<u>Education</u>	Transportation	Environment
		Low educational participation aged 17	Family	al
		Low educational attainment	structure/Demographics	
		<u>Housing</u>	Health:	
		Home insurance weightings	• Mortality	
		Households lacking amenities	Income and Wealth	
		Overcrowded housing	Green space	
		<u>Transportation</u>		
		Households lacking a car (income proxy)		
		<u>Family structure/Demographics</u>		
		Children in unsuitable accommodation		
		Children in low earning households		
		<u>Income and Wealth</u>		
		Income support		
		<u>Health</u>		
		<u>Mortality</u>		
		Standardized mortality ratios		
		<u>Green space</u>		
		Derelict land		
<b>34</b>	Richardson et al. (2010) Multiple Environmental	<u>Air quality</u>	Air quality	Environment
		Particulate matter (PM10) 10 micrometers or less in diameter	Climate	al
		Ozone (O <sub>3</sub> )	UV radiation	

	Deprivation Index (MEDix) [39]	Nitrogen dioxide (NO <sub>2</sub> ) Sulphur dioxide (SO <sub>2</sub> ) Carbon monoxide (CO) <u>Climate</u> Average temperature Cooling degree-days1 Heating degree-days2 Winter cold wave duration Summer heatwave duration <u>UV radiation</u> UV radiation <u>Industrial risks</u> Waste management sites Metal production/processing sites <u>Green space</u> Green space	Industrial risks Green space	
35	Noble et al. (2001) Northern Ireland Multiple Deprivation Measure (NIMDM) [40]	<u>Income and Wealth</u> Adults in income support households Children in income support households Adults in income based job seekers allowance households Children in income based job seekers allowance households Adults in family credit households Children in family credit households Adults in disability working allowance households Children in disability working allowance households <u>Employment/Occupation</u> Unemployment claimant counts of those aged under 60 (average of four quarterly extracts) Incapacity benefit recipients aged under 60 Severe disablement allowance recipients aged under 60 New deal participants not included in the unemployment claimant count Working age adults with no qualifications <u>Health</u> <u>Mortality</u>	Income and Wealth Employment/Occupation Health: <ul style="list-style-type: none"> <li>• Mortality</li> <li>• Disability</li> <li>• Cancer</li> <li>• Dentistry</li> <li>• Mental disorders</li> </ul> Education Housing Build environment Social Environment	Social, Material, Health, Environment al

Standardized mortality ratios for men and women at ages under 75

Disability

People receiving one or more of attendance allowance or disability living Allowance or incapacity benefit or severe disablement allowance

Cancer

People registered as having cancer (excluding non-melanoma skin cancers)

Dentistry

Proportion of all 12 to 17 year olds with extractions and registered with a GDS dentist, and those not registered with a GDS dentist

Mental disorders

Drugs prescribed for depression or anxiety

Education

Proportions of those leaving school aged 16 and not entering further education

Proportions of 17-20 year olds who have not successfully applied for higher education

GCSE/GNVQ performance data points score and no qualifications

Absenteeism at secondary level

Proportions of years 11 and 12 pupils not in a grammar school

Housing

Housing in disrepair

Houses without central heating

Houses lacking insulation

Build environment

Access to a post office

Access to a GP surgery

Access to an accident and emergency hospital

Access to a dentist

Access to an optician

Access to a pharmacist

Access to a library

Access to a museum

Access to a social security office or a training and employment agency

Social Environment

		Burglary in a dwelling Violence against the person (excluding assaults) Common assaults Serious assaults Theft of a vehicle Theft from a vehicle Criminal damage Burglary in a building other than a dwelling Drug offences local area problem score (graffiti, scruffy/neglected buildings, scruffy gardens/landscaping, litter/rubbish/dumping and vandalism)		
<b>36</b>	Kelly et al.(1997) Small Area Health Research Unit (SAHRU) Deprivation Index [42]	<u>Employment/Occupation</u> Unemployment Low social class <u>Transportation</u> No car <u>Housing</u> Rented accommodation Overcrowding	Employment/Occupation Transportation Housing	Material
<b>37</b>	Haase, Pratschke and Gleeson (2014) All-Island Deprivation Index [44]	<u>Family structure/Demographics</u> Percentage change in population over the previous five years Percentage of people aged under 15 or over 64 years of age Percentage of households with children aged under 15 years and headed by a single parent <u>Education</u> Percentage of people with a primary school education only Percentage of people with a third-level education Percentage of people with a primary school education only Percentage of people with a third-level education <u>Housing</u> Mean number of persons per room <u>Employment/Occupation</u> Percentage of households headed by professionals or managerial and technical employees, including farmers with 100 acres or more	Family structure/ Demographics Education Housing Employment/Occupation	Social, Material

38	Welsh Index of Multiple Deprivation (WIMD) (2000) [45]	<p>Percentage of households headed by semiskilled or unskilled manual workers, including farmers with less than 30 acres</p> <p>Male unemployment rate</p> <p>Female unemployment rate</p> <p><u>Income and Wealth</u></p> <p>Percentage of population in income deprivation those who are: in receipt of income related benefits; in receipt of tax credits with and income 60% below the wales median; or a supported asylum seeker</p> <p><u>Employment/Occupation</u></p> <p>Percentage of working age population in receipt of employment related benefits</p> <p><u>Health</u></p> <p><u>Mortality</u></p> <p>All-cause death rate</p> <p><u>Cancer</u></p> <p>Cancer incidence long term</p> <p><u>Disability</u></p> <p>Limiting illness</p> <p><u>Birth rate</u></p> <p>Low birth weight</p> <p><u>Education</u></p> <p>Key stage 2 average point score</p> <p>Key stage 4 capped point score</p> <p>Key stage 4 level 2 inclusive</p> <p>Repeat absenteeism</p> <p>Proportion of 18-19 year olds not entering higher education</p> <p>Proportion of 25-64 year olds with no qualifications</p> <p><u>Build environment</u></p> <p>Average travel time by public and private transport to the nearest: food shop, general practitioner (GP) surgery, post office, public library, leisure centre, primary school, secondary school, pharmacy, and petrol station (private transport only)</p> <p><u>Social environment</u></p>	<p>Income and Wealth</p> <p>Employment/Occupation</p> <p>Health:</p> <ul style="list-style-type: none"> <li>• Mortality</li> <li>• Cancer</li> <li>• Disability</li> <li>• Birth rate</li> </ul> <p>Housing</p> <p>Education</p> <p>Social environment</p> <p>Build environment</p> <p>Air quality</p> <p>Natural disaster</p> <p>Industrial risks</p>	<p>Social, Material, Health, Environment al</p>
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	Police recorded violent crime		
	Police recorded criminal damage		
	Police recorded burglary		
	Police recorded theft		
	Antisocial behaviour		
	Fire incidence		
	<u>Air quality</u>		
	Air concentrations		
	Air emissions		
	<u>Natural disaster</u>		
	Flood risk		
	<u>Industrial risks</u>		
	Proximity to waste and industrial sites		
	<u>Housing</u>		
	Overcrowding (bedroom occupancy)		
	Lack of central heating		
<b>39</b>	Scottish Index of	<u>Income and Wealth</u>	Income and Wealth
	Multiple	Adults in income support households	Employment/Occupation
	Deprivation (SIMD)	Children (aged 0-19) in income support households	Health:
	(2004) [47]	Adults in income based job seekers allowance households	<ul style="list-style-type: none"> <li>• Mortality</li> <li>• Disability</li> <li>• Bad habit</li> <li>• Hospitalization</li> <li>• Mental disorders</li> <li>• Birth rate</li> </ul>
		Children in (aged 0-19) income based job seekers allowance households	
		Adults in working families tax credit	
		Households below a low income threshold	
		Children in working families tax credit	
		Households below a low income threshold	
		Adults in disability tax credit households below a low income threshold	
		Children in disability tax credit households below a low income threshold	
		<u>Employment/Occupation</u>	Education
		Unemployment claimant count averaged over 12 months of those men aged under 65 and women aged under 60	Build environment
		Incapacity benefit recipients, men aged under 65 and women aged under 60	Housing
		Severe disablement allowance recipients, men aged under 65 and women aged under 60	
			Social, Material, Health, Environment al

Compulsory new deal participants — new deal for the under 25s and new deal for the 25+ not included in the unemployment claimant count

Health

Mortality

Comparative mortality factor

Bad habits

Hospital episodes related to alcohol use

Hospital episodes related to drug use

Disability

Comparative illness factor

Hospitalization

Emergency admissions to hospital

Mental disorders

Proportion of population being prescribed drugs for anxiety, depression or psychosis

Birth rate

Proportion of live singleton births of low birth weight

Education

Secondary level absences

Pupil performance on SQA at Stage 4

Working age adults with no qualifications

Proportion of the 17+ population not applying successfully to HE

Pupils age 16+ not in full time education

Build environment

Drive time to a GP

Drive time to a petrol station

Drive time to a post office

Drive time to a primary school

Drive time to a supermarket

Housing

Persons in households that are overcrowded

Persons in households without central heating

Income and Wealth\*(NZDep91)

Equivalised\* household income below an income threshold

40 Salmond et al.  
(2012) New

Income and Wealth  
Housing

Social,  
Material

	Zealand's Deprivation Index (NZDep) [49]	<p>Equivalised* household below an occupancy threshold</p> <p>Means tested benefit and age 18-59</p> <p><u>Housing</u></p> <p>Not living in own home</p> <p><u>Transportation</u></p> <p>Adults with no access to a car</p> <p><u>Employment/Occupation</u></p> <p>Unemployed and age 18-59</p> <p>No qualifications and age 18-59</p> <p><u>Family structure/Demographics</u></p> <p>Single parent family</p> <p>Separated or divorced and age 18-59</p> <p>Separated or divorced and age 60 plus</p>	<p>Transportation</p> <p>Employment/Occupation</p> <p>Family structure/ Demographics</p>	
41	Ross index/Socio-Economic Indexes for Areas (SEIFA) The Index of Relative Socio-economic Disadvantage (IRSD) (1986) [51]	<p><u>Income and Wealth</u></p> <p>% of people with stated household equivalised income between \$1 and \$25,999 per year</p> <p><u>Employment/Occupation</u></p> <p>% of families with children under 15 years of age who live with jobless parents</p> <p>% of people (in the labour force) who are unemployed</p> <p>% of employed people classified as Labourers</p> <p>% of employed people classified as Machinery Operators and Drivers</p> <p>% of employed people classified as low skill Community and Personal Service workers</p> <p><u>Communication</u></p> <p>% of occupied private dwellings with no internet connection</p> <p><u>Education</u></p> <p>% of people aged 15 years and over whose highest level of education is year 11 or lower</p> <p>% of people aged 15 years and over who have no educational attainment</p> <p><u>Housing</u></p> <p>% of occupied private dwellings paying rent less than \$215 per week (excluding \$0 per week)</p> <p><u>Family structure/Demographics</u></p>	<p>Income and Wealth</p> <p>Employment/Occupation</p> <p>Communication</p> <p>Education</p> <p>Housing</p> <p>Family structure/ Demographics</p> <p>Transportation</p> <p>Immigration</p>	<p>Social, Material</p>

		% of one parent families with dependent offspring only		
		% of people under the age of 70 who have a long-term health condition or disability and need assistance with core activities		
		% of people aged 15 years and over who are separated or divorced		
		<u>Transportation</u>		
		% of occupied private dwellings with no cars		
		<u>Housing</u>		
		% of occupied private dwellings requiring one or more extra bedrooms		
		<u>Immigration</u>		
		% of people who do not speak English well		
<b>42</b>	Bell et al. (2007)	<u>Income and Wealth</u>	Income and Wealth	Social,
	Vancouver Area	Average income	Housing	Material
	Neighbourhood	<u>Housing</u>	Employment/Occupation	
	Deprivation Index	Average dwelling value	Family structure/	
	(VANDIX) [53]	Single-detached housing	Demographics	
		Home ownership	Mobility	
		Proportion of renters	Education	
		Reside in an apartment	Immigration	
		<u>Employment/Occupation</u>		
		Employment ratio		
		Unemployment rate		
		Females in labour force		
		<u>Family structure/Demographics</u>		
		Elderly 65+living alone		
		Living alone		
		Single parent family		
		Separated/divorced/widowed		
		Children under age 5		
		Family size + 5 persons		
		<u>Mobility</u>		
		Moved in the last 5 years		
		Moved in the last year		
		<u>Education</u>		
		No high school completion		

43	Langlois et al. (1996) General Deprivation Index (GDI) [54]	<p>With a university degree</p> <p><u>Immigration</u></p> <p>Non-Canadian citizen</p> <p>First language non-official</p> <p><u>Family structure/Demographics</u></p> <p>Rate of population change from 1991 to 1996</p> <p>Percentage of males in the total population</p> <p>Percentage of the total population aged 15– 25 years</p> <p>Percentage of the total population aged 65 years and over</p> <p>Percentage of the total population that is single</p> <p>Percentage of total census families that are headed by a single female parent</p> <p><u>Income and Wealth</u></p> <p>Median family income in Canadian dollars</p> <p>Percentage of all economic families living below statistics Canada's low-income cut-off (LICO)</p> <p><u>Education</u></p> <p>Percentage of the total population 15 years and over whose highest level of schooling is grade 12 or lower</p> <p><u>Immigration</u></p> <p>Percentage of the total population whose mother tongue is a non-official language (neither English nor French)</p> <p><u>Housing</u></p> <p>Average value of dwellings in Canadian dollars</p> <p>Percentage of household occupants who are renters</p> <p>Percentage of occupied private dwellings that are in need of major repair</p> <p><u>Employment/Occupation</u></p> <p>Percentage of young people aged 15– 25 years who are unemployed</p> <p>Percentage of young people aged 15– 25 years who are in the labour force</p> <p>Percentage of the total male population aged 15 years and over who are unemployed</p> <p>Percentage of the total male population aged 15 years and over who are in the labour force</p>	<p>Family structure/ Demographics</p> <p>Income and Wealth</p> <p>Education</p> <p>Immigration</p> <p>Housing</p> <p>Employment/Occupation</p> <p>Indoor environment</p>	<p>Social, Material, Environmental</p>
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		Percentage of the total female population aged 15 years and over who are unemployed		
		Percentage of the total female population aged 15 years and over who are in the labour force		
		<u>Indoor environment</u>		
		Percentage of occupied private dwellings built before 1960		
<b>44</b>	Pampalon et al. (2000)the Deprivation Index for Health and Welfare Planning for Quebec (DIHWPQ) [55]	<u>Education</u> The proportion of people aged 15 years and older with no high school diploma <u>Employment/Occupation</u> The employment/population ratio* of people aged 15 years and older <u>Income and Wealth</u> The average income of people aged 15 years and older <u>Family structure/Demographics</u> The proportion of individuals aged 15 years and older living alone The proportion of individuals aged 15 years and older who are separated, divorced or widowed The proportion of single-parent families (* proportion of people among those aged 15 years and older, adjusted according to the age and sex of the Quebec population)	Education Employment/Occupation Income and Wealth Family structure/ Demographics	Social, Material
<b>45</b>	Mustard et al. (1995) Socio-Economic Risk Index (SERI)/Socio-economic Factor Index (SEFI) [57]	<u>Employment/Occupation</u> Labour force unemployment among persons aged 15-24 Unemployment among those aged 45-54 Female labour force participation <u>Family structure/Demographics</u> Percentage of single parent female households <u>Education</u> Percentage of the population aged 25-34 having graduated high school <u>Housing</u> The average value of owner-occupied dwellings	Employment/Occupation Education Family structure/ Demographics Housing	Social, Material
<b>46</b>	Butler et al. (2012) Social Deprivation Index (SDI) [60]	<u>Income and Wealth</u> % living in poverty, <u>Racial composition</u> % black,	Income and Wealth Racial composition Education Family structure/	Social, Material

		<u>Education</u> less than 12 years of schooling, <u>Family structure/demographics</u> Single parent households The percent of the population under the age of 5 Female between the ages of 15 and 44 Persons older than 65 <u>Housing</u> Single occupant households % living in overcrowded conditions (more persons in a dwelling unit than number of rooms), <u>Transportation</u> Percent of households without a car, <u>Employment/Occupation</u> Percent of 18- to 64-year olds that are unemployed	Demographics Housing Transportation Employment/Occupation	
47	Andrews et al. (2020) Neighborhood deprivation Index (NDI) [61]	<u>Employment/Occupation</u> % employed in management (% of employed people (age 16 and older) working in management, business, science, and arts) % unemployment (% of people age 16 and older that are unemployed) <u>Education</u> % high school graduates(population 25 years and older: % with a high school diploma or higher) % bachelor's degree or higher(population 25 years and older: % with a bachelor's degree or higher) <u>Communication</u> % households without telephone <u>Housing</u> % households without plumbing <u>Income and Wealth</u> Household income (median household income in the last 12 months) Home value (median home value) % family poverty % public assistance (% of families receiving public assistance income in the past 12 months)	Employment/Occupation Education Communication Housing Income and Wealth Family structure/ Demographics	Social, Material

		% housing units receiving interest/dividends/rental income (% of housing units that are receiving interest, dividends, or net rental income in the past 12 months for households)		
		<u>Family structure/Demographics</u>		
		% female-headed household (% of female-headed households with children under 18)		
<b>48</b>	Singh et al. (2002) Factor-Based Area Socioeconomic Index [62]	<u>Education</u>	Education	Social,
		Percentage of population with <9 years of education	Employment/Occupation	Material
		Percentage of population with at least 12 years of education	Income and Wealth	
		<u>Employment/Occupation</u>	Family structure/ Demographics	
		Occupational composition (% employed persons aged ≥16 years in white collar occupations)	Housing	
		Unemployment rate (% civilian labor force aged ≥16 years unemployed)	Communication	
		<u>Income and Wealth</u>	Immigration	
		Median family income		
		Income disparity		
		Family poverty rate		
		<u>Family structure/Demographics</u>		
		Single parent household rate		
		<u>Housing</u>		
		Home ownership rate		
		Median home value		
		Median gross rent		
		Household crowding (percentage of households with more than one person per room)		
		Percentage of households without access to plumbing		
		<u>Communication</u>		
		Percentage of households without access to phone		
		<u>Immigration</u>		
		English language proficiency		
<b>49</b>	Diez-Roux et al. (2001) Neighborhood	<u>Income and Wealth</u>	Income and Wealth	Material
		Median household income (U.S.\$)	Employment/Occupation	
		Percentage persons below poverty	Housing	
		<u>Employment/Occupation</u>		

	Socioeconomic Index [64]	<p>Percentage employed persons 16 years of age and older in executive, managerial or professional occupations</p> <p>Percentage unemployment</p> <p><u>Housing</u></p> <p>Percentage households receiving interest, dividend, or net rental income</p> <p>Median value of owner-occupied housing units (U.S.\$)</p> <p>Percentage of housing units that are owner occupied</p> <p>Percentage of housing units unoccupied</p> <p>Percentage of housing units boarded up*(* Boarded-up status was obtained for all vacant housing units. Boarded-up units have windows and doors covered by wood, metal, or masonry to protect the interior and to prevent entry into the building.)</p> <p>Percentage occupied housing units with one person per room</p>		
50	Sampson et al. (1997) Deprivation Index [65]	<p><u>Income and Wealth</u></p> <p>Below poverty line</p> <p>On public assistance</p> <p><u>Employment/Occupation</u></p> <p>Unemployed</p> <p><u>Family structure/Demographics</u></p> <p>Female-headed families</p> <p>Less than age 18</p> <p><u>Housing</u></p> <p>Owner-occupied house</p> <p><u>Racial composition</u></p> <p>% black</p> <p>% latino</p> <p><u>Immigration</u></p> <p>% foreign-born</p> <p><u>Mobility</u></p> <p>Same houses as in 1985</p>	<p>Income and Wealth</p> <p>Employment/Occupation</p> <p>Family structure/ Demographics</p> <p>Housing</p> <p>Racial composition</p> <p>Immigration</p> <p>Mobility</p>	<p>Social,</p> <p>Material</p>
51	Perkins et al. (2012) Health	<p><u>Income and Wealth</u></p>	<p>Income and Wealth</p> <p>Employment/Occupation</p>	<p>Social,</p> <p>Material,</p>

Opportunity Index (HOI) [66]

Affordability (the proportion of a neighborhood's income that is spent on housing and transportation)

Income inequality (the Gini coefficient(index))

Employment/Occupation

Unemployment(the percentage of active residents in a community between the ages of 16 to 64 who are unemployed)

Job participation (the percentage of working aged individuals (16–64 years of age) in the active labor force),

Employment access (the accessibility of jobs in a particular area)

Transportation

Car ownership (the percentage of private households who do not possess a car)

Housing

Home ownership (the percentage of private homes not currently occupied by the homeowner)

Overcrowding

Education

Education (the average education level achieved by the adult population in an area)

Family structure/Demographics

Population churning

Population-weighted density

Racial composition

Segregation index measures how the racial composition of a population in a census tract compares to that of the rest of the state

Build environment

Food accessibility

Walkability

Access to care

Air quality

Environmental quality index (neurological risk, cancer risk, respiration risk, on-road pollution, non-road pollution, and non-point pollution)

Transportation

Housing

Education

Family structure/

Demographics

Racial composition

Build environment

Air quality

Environmental

52	Messer et al. (2006) Deprivation Index [67]	<u>Housing</u> Percent of crowded housing, <u>Income and Wealth</u> Percent of households in poverty, Percent of households on public assistance and households earning <\$30,000 per year estimating poverty <u>Education</u> Percent earning less than a high school education <u>Family structure/Demographics</u> Percent of female headed households with dependents <u>Employment/Occupation</u> Percent unemployed Percent of males in management and professional occupations	Housing Income and Wealth Education Family structure/ Demographics Employment/Occupation	Social, Material
53	López-De Fede et al.(2016) Palmetto Small-Area Deprivation Index (Palmetto SADI) [68]	<u>Education</u> % persons 25 and older without a high school (HS) diploma % persons 16–19 not enrolled and not a HS graduate <u>Income and Wealth</u> % persons below poverty level % households with income < \$15,000 % renter-occupied households <u>Employment/Occupation</u> % persons 16 and older unemployed % persons 16–64 working part-time <u>Family structure/Demographics</u> % persons 15 and older unmarried or separated % single female-headed family households <u>Transportation</u> % households with no vehicle	Education Income and Wealth Employment/Occupation Family structure /Demographics Transportation	Social, Material
54	Brokamp et al. (2016) Deprivation Index [69]	<u>Education</u> Fraction that graduated high school <u>Income and Wealth</u> Fraction of households in poverty Median household income Fraction of population receiving public assisted income	Education Income and Wealth Racial composition	Social, Material

55	Wheeler et al. (2019) Neighborhood Deprivation Index [71]	Fraction of houses that are vacant		
		Median home value		
		<u>Racial composition</u>		
		White fraction of population		
		Black fraction of population		
		<u>Income and Wealth</u>	Income and Wealth	
		Household Gini index of income inequality	Racial composition	Social, Material
		Percent of households with income below federal poverty level in the past 12 months	Family structure/ Demographics	
		Percent of households receiving public assistance income in the past 12 months	Education	
		Percent of households receiving cash public assistance or food stamps/SNAP	Employment/Occupation	
		Median household income (U.S. Dollars) in the past 12 months	Housing	
		Social security income in the past 12 months		
		<u>Racial composition</u>		
		percent of the population that is African-American		
		<u>Family structure/Demographics</u>		
		Percent female headed households with children present		
		<u>Education</u>		
		Percent of population aged ≥ 25 years with less than high school education		
		<u>Employment/Occupation</u>		
		Percent of unemployed population aged 16 years and over		
<u>Housing</u>				
Percent of vacant housing units				
Percent of renter occupied housing units				
Percent of households receiving				
<u>Indoor environment</u>				
Percent of housing units built in 1939 or earlier				
Percent of housing units built from 1940–1949				
56	Kolak et al. (2020) Multidimensional Social Determinants of	<u>Racial composition</u>	Racial composition	Social, Material, Health
		Minority status	Family structure /Demographics	
		<u>Family structure/Demographics</u>	Health:	
		Over age 65		

Health (SDOH)  
Index [72]

Under age 17  
Single parent  
Health  
Disability  
Disabled  
Health insurance  
Uninsured  
Education  
No high school  
Immigration  
Limited English  
Income and Wealth  
Poverty  
Per capita income  
Employment/Occupation  
Unemployment  
Housing  
The proportion of renters  
Rent burden (more than 30% of income used for rent payments)  
Crowded housing conditions (occupied housing units consisting of more people than rooms)  
Transportation  
No vehicle

- Disability
- Health insurance

Education  
Immigration  
Income and Wealth  
Employment/Occupation  
Housing  
Transportation

57 Dubowitz et al.  
(2008)  
Neighborhood  
Socioeconomic  
Status (NSES) Index  
[73]

Education  
Percent of adults older than 25 with less than a high school education  
Employment/Occupation  
Percent male unemployment  
Income and Wealth  
Percent of households with income below the poverty line  
Percent of households receiving public assistance  
Median household income  
Family structure/Demographics  
Percent of households with children that are headed only by a female

Education  
Employment/Occupation  
Income and Wealth  
Family structure/  
Demographics

Social,  
Material

58	Peyvandi et al. (2020) Environmental Exposure Index (EEI) [74]	<u>Industrial risks</u> Toxic release from facilities <u>Air quality</u> Air quality measured by ozone (main ingredient in smog) and particulate matter 2.5 Pollution from diesel engines/exhaust <u>Water quality</u>	Industrial risks Air quality Water quality	Environmental
59	Maizlish et al. (2019) California Healthy Places Index (HPI) [75]	<u>Family structure/Demographics</u> Percentage of family households with children aged <18 with 2 parents <u>Income and Wealth</u> Percentage of population with household income >200% of the federal poverty level Percentage of population aged 25-64 employed Median household income <u>Education</u> Percentage of population aged >25 with a bachelor's degree or higher Percentage of teenagers aged 15-17 enrolled in school Percentage of children aged 3 or 4 enrolled in preschool <u>Health</u> <u>Health insurance</u> Percentage of adults aged 18-64 currently insured <u>Housing</u> Percentage of housing units occupied by property owners Percentage of households with complete kitchen facilities and plumbing Percentage of low-income home owners paying >50% of income on housing costs Percentage of low-income renter households paying >50% of income on housing costs Percentage of households with ≤1 occupant per room <u>Build environment</u> Percentage of population living within a half-mile of a park, beach, or open space >1 acre Population-weighted percentage of the census tract area with tree canopy	Family structure/ Demographics Income and Wealth Education Health: <ul style="list-style-type: none"> <li>• Health insurance</li> </ul> Housing Build environment Air quality Water quality Social environment Transportation Racial composition	Social, Material, Environmental, Health

Percentage of urban and small-town population residing <1 half-mile from a supermarket or large grocery store

Percentage of rural population living <1 mile from a supermarket or large grocery store

Percentage of population residing within 1-quarter mile of an off-site sales alcohol outlet

Combined employment density for retail, entertainment, and educational uses (jobs per acre)

#### Air quality

Spatial distribution of gridded diesel particulate-matter emissions from on-road and non-road sources for a summer day in July 2012 (kg/d) (census tracts were ordered by diesel particulate-matter concentration values and assigned a percentile based on the statewide distribution of values)

Mean of summer months (May-October) of the daily maximum 8-h ozone concentration (parts per million), averaged over 3 y (2012-2014) (census tracts were ordered by ozone concentration values and assigned a percentile based on the statewide distribution of values)

Annual mean concentration of particulate matter  $\leq 2.5 \mu\text{m}$  across (PM<sub>2.5</sub>; average of quarterly means,  $\mu\text{g}/\text{m}^3$ ) over 3y (2012-2014) (census tracts were ordered by PM<sub>2.5</sub> concentration values and assigned a percentile based on the statewide distribution of values)

#### Water quality

Cal EnviroScreen 3.0 drinking water contaminant index for selected contaminants

#### Social environment

Percentage of registered voters who voted in the 2012 general election

#### Transportation

Percentage of households with access to an automobile

Percentage of workers (aged  $\geq 16$ ) commuting by walking, cycling, or transit (excluding working from home)

#### Racial composition

Index of dissimilarity using county percentage of black persons as a parity reference and aggregating census block differences to census tracts

60	Acevedo-Garcia et al. (2014) Child Opportunity Index [76]	<u>Education</u> School poverty rate (eligibility for free or reduced-price lunch) Student math proficiency level Student reading proficiency level Proximity to licensed early childhood education centers Proximity to high-quality early childhood education centers Early childhood education participation High school graduation rate Adult educational attainment <u>Housing</u> Housing vacancy rate Foreclosure rate <u>Income and Wealth</u> Poverty rate Public assistance rate <u>Employment/Occupation</u> Unemployment rate <u>Build environment</u> Retail healthy food environment index Proximity to parks and open spaces Proximity to employment Proximity to health care facilities <u>Industrial risks</u> Volume of nearby toxic waste release Proximity to toxic waste release sites	Education Housing Income and Wealth Employment/Occupation Build environment Industrial risks	Social, Material, Environmental
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