

## **Supplementary materials for Barrington-Leigh and Helliwell, “Empathy and emulation: Life satisfaction and the urban geography of comparison groups”**

### **A Supplementary tables**

Some more detailed tabulated regression results are collected here.

Table 12: **Detailed regressions for baseline model and subpopulation estimates.** These results are summarised in Table 3 on page 16.  
Significance: 1% 5% 10%

	N clusters										pseudo-R <sup>2</sup>											
	obs.										E2	E1										
(1)	.26 (.20)	.093 (.61)	.14 (.99)	-.146 (.121)	-.56 (.18)	-1.53 (.32)	1.04 (.17)	.49 (.21)	.63 (.21)	.37 (.21)	-.24 (.24)	.10 (.32)	-.018 (.11)									
(2)	.23 (.048)	.14 (.20)	-.33 (.24)	.11 (.32)	-.11 (.38)	-.13 (.41)	.98 (.097)	.73 (.061)	.45 (.092)	.46 (.077)	-.078 (.064)	.009 (.068)	.56 (.14)	1.27 (.13)	2.00 (.15)	1.07 (.15)						
(3)	.32 (.059)	.41 (.18)	-.38 (.22)	-.43 (.37)	-.43 (.40)	-.108 (.095)	-.136 (.087)	2.74 (.068)	.44 (.077)	.35 (.10)	-.098 (.089)	-.029 (.081)	-.16 (.081)	-.21 (.061)	.38 (.18)	.65 (.17)	.58 (.18)	.69 (.18)				
(1-3)	.27 (.037)	.28 (.13)	-.43 (.16)	-.24 (.22)	-.108 (.26)	-.119 (.28)	2.61 (.091)	1.25 (.061)	.40 (.044)	.45 (.057)	-.089 (.084)	-.11 (.028)	-.009 (.038)	-.11 (.044)	-.13 (.11)	.45 (.10)	1.03 (.12)	.98 (.12)	.92 (.12)			
(4)	.29 (.18)	.24 (.42)	.31 (.57)	-.72 (.148)	-.15 (.132)	-.87 (.21)	.40 (.27)	.69 (.27)	.27 (.27)	-.15 (.27)	-.15 (.43)	.084 (.079)	-.11 (.14)	.44 (.39)	-.11 (.14)	-.11 (.14)	-.99 (.099)	-.027 (.099)	.37 (.099)	CMA		
(5)	.23 (.043)	.15 (.14)	-.33 (.20)	.21 (.24)	.26 (.21)	1.80 (.088)	.47 (.057)	.42 (.068)	.42 (.068)	.42 (.068)	-.082 (.040)	.083 (.061)	.59 (.14)	1.26 (.15)	2.00 (.16)	.08 (.13)	.108 (.13)	.60 (.18)	.62 (.18)	.20 (.18)	CMA	
(6)	.31 (.051)	.41 (.13)	-.60 (.16)	-.36 (.22)	-.25 (.26)	2.75 (.28)	1.05 (.091)	.45 (.061)	.34 (.061)	-.44 (.044)	-.086 (.057)	-.037 (.057)	-.16 (.084)	-.18 (.12)	.40 (.12)	.64 (.12)	.57 (.12)	.69 (.12)	.84 (.12)	.92 (.12)	CMA	
(4-6)	.26 (.032)	.28 (.093)	-.47 (.12)	-.12 (.16)	.26 (.21)	2.59 (.095)	1.27 (.063)	.46 (.036)	.37 (.044)	-.44 (.079)	-.087 (.064)	-.008 (.064)	-.12 (.11)	-.13 (.11)	.50 (.11)	.99 (.11)	.88 (.11)	-.42 (.095)	1.13 (.11)	-.078 (.11)	CMA	
(7)	.41 (.20)	.81 (.54)	-.91 (.13)	-.91 (.14)	.31 (.31)	.76 (.46)	.47 (.22)	.77 (.40)	-.47 (.38)	-.17 (.25)	.49 (.12)	-.11 (.12)	.45 (.12)	-.11 (.12)	.45 (.12)	-.94 (.12)	-.35 (.12)	.50 (.12)	.30 (.12)	CSD		
(8)	.25 (.050)	.13 (.18)	-.29 (.20)	.093 (.067)	1.84 (.092)	.46 (.057)	.45 (.091)	.45 (.091)	-.45 (.091)	-.076 (.040)	.11 (.062)	.62 (.17)	1.18 (.18)	1.08 (.18)	1.08 (.18)	1.08 (.18)	1.40 (.19)	-.65 (.099)	.62 (.099)	.62 (.099)	CSD	
(9)	.30 (.060)	.42 (.17)	-.61 (.15)	-.61 (.11)	.12 (.060)	2.78 (.074)	1.09 (.064)	.42 (.081)	.31 (.096)	-.47 (.078)	-.10 (.14)	-.072 (.068)	-.17 (.14)	-.15 (.14)	.41 (.14)	.53 (.14)	.47 (.14)	.58 (.14)	-.29 (.14)	.71 (.14)	-.093 (.14)	CSD
(7-9)	.27 (.038)	.32 (.12)	-.51 (.12)	-.51 (.054)	.11 (.044)	2.66 (.11)	1.26 (.054)	.46 (.060)	.38 (.066)	-.47 (.076)	-.11 (.12)	.072 (.027)	-.12 (.039)	-.074 (.041)	.51 (.13)	.93 (.13)	.84 (.13)	.82 (.13)	-.50 (.13)	1.03 (.13)	-.075 (.13)	CSD
(10)																						
(11)	.28 (.099)	.58 (.38)																				
(12)	.70 (-.18)																					

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	log(HH inc)	DA: log(HH inc)	CT: log(HH inc)	CSD: log(HH inc)	CMA: log(HH inc)	Z <sup>Bme</sup>	trust-N	marted	separated	divorced	widowed	male	nonReligion	godImpotence	student	employed	unemployed	retired	agee	agee	controlls	fe./clusterng	city<=10yr	foreign born	own house	survey	obs.	pseudo-R <sup>2</sup>	Nclusters		
(21)	(.21)	(.47)	(.35)	(.27)	(.66)	3.29	1.81	.67	.49	-1.07	.048	.026	-.17	.089	.76	1.39	1.20	1.00	(.19)	(.20)	(.70)	(.62)	(.65)	(.67)	(.56)	(.035)	(.382)	(2)	9620		
(.090)	(.29)	(.20)	(.37)	(.15)	(.11)	(.16)	(.39)	(.36)	(.51)	(.071)	(.11)	(.27)	(.25)	(.27)	(.67)	(.27)	(.25)	(.27)	(.11)	(.11)	(.27)	(.25)	(.27)	(.67)	(.015)	(.165)		G17	7087.067		
(.073)	(.24)	(.28)	(.23)	(.68)	(-.31)	(-.91)	(-1.40)	2.81	1.15	.53	.48	-.33	-.12	.043	-.10	-.12	.49	.80	.59	.72	-.045	.90	-.089	.821	.✓				G17	7087.069	
(.060)	(.26)	(.27)	(.24)	(.72)	(-.28)	(-.48)	(2.83)	1.17	.55	.46	-.31	-.095	.035	-.099	-.079	.51	.78	.58	.71	-.070	.89	-.091	8.38	.✓	CMA	✓		G17	7087.069		
(.072)	(.24)	(.26)	(.27)	(-.73)	(-.19)	(2.83)	1.24	.49	.40	-.35	-.14	.042	-.097	-.032	.53	.57	.41	.51	-.22	.69	-.086	8.03	.✓	CSD	✓		G17	6312.074			
(.16)																															
(20)																															
(21)																															
(.11)	(.25)	(.25)	(.33)	(.47)	(.30)	(.38)	(.70)	(.15)	(.13)	(.097)	(.10)	(.14)	(.14)	(.29)	(.063)	(.068)	(.094)	(.32)	(.31)	(.33)	(.36)	(.35)	(.016)	(.193)				G17	5114.061		
(.048)	(.18)	(.18)	(.32)	(.48)	(.38)	(.43)	(.70)	(.15)	(.13)	(.097)	(.10)	(.14)	(.14)	(.29)	(.063)	(.068)	(.094)	(.32)	(.31)	(.33)	(.36)	(.35)	(.016)	(.193)				G17	5108.066		
(.19)	(.25)	(.25)	(.35)	(.54)	(.54)	(.41)	(.74)	(-.18)	(2.71)	.87	.46	.33	-.48	-.032	-.11	(-.23)	(-.28)	.28	.49	.56	.65	-.29	.66	-.12	12.1	✓	CMA	×		G17	5108.069
(.062)	(.20)	(.20)	(.27)	(-.71)	(-.27)	(-.73)	(-.19)	(2.83)	1.24	.49	.40	-.35	-.14	.042	-.097	-.032	.53	.57	.41	.51	-.22	.69	-.086	8.03	✓	CSD	✓		G17	6312.074	
(.24)																															
(25)																															
(.11)	(.33)	(.33)	(.40)	(.58)	(.58)	(.43)	(.43)	(.11)	(.10)	(.084)	(.10)	(.12)	(.10)	(.14)	(.046)	(.046)	(.072)	(.21)	(.19)	(.21)	(.25)	(.20)	(.010)	(.106)				G17	3200.059		
(.14)	(.25)	(.25)	(.34)	(.54)	(.54)	(.44)	(.44)	(.12)	(.11)	(.096)	(.11)	(.12)	(.10)	(.15)	(.057)	(.057)	(.072)	(.21)	(.19)	(.21)	(.25)	(.20)	(.010)	(.106)				G17	3154.064		
(.15)	(.31)	(.31)	(.34)	(.56)	(.56)	(.44)	(.44)	(.12)	(.11)	(.096)	(.11)	(.12)	(.10)	(.15)	(.068)	(.068)	(.095)	(.21)	(.19)	(.21)	(.25)	(.20)	(.010)	(.106)				G17	2564.073		
(.23)																															

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	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)	(45)	(46)	(47)
CDA: log(HH inc)																				
CT: log(HH inc)																				
CSD: log(HH inc)																				
CMA: log(HH inc)																				
Z <sup>Binc</sup>																				
health																				
trust-N																				
as married																				
separated																				
widowed																				
male																				
domestic																				
employed																				
student																				
unemployed																				
referred																				
age/(100) <sup>2</sup>																				
controls																				
surv eye																				
foreign born																				
city > 10 yr																				
city > 10 yr																				
own house																				
N clusters																				
obs.																				
ED 6689.061																				
G17 0																				

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OLS		IV		IV with instruments		IV with instruments		IV with instruments and cluster robust standard errors		IV with instruments and heteroskedasticity robust standard errors		
	Dependent variable		Dependent variable		Dependent variable		Dependent variable		Dependent variable		Dependent variable	
DA: log(HH inc)	CSD: log(HH inc)	CMA: log(HH inc)	CT: log(HH inc)	CD: log(HH inc)	log(HH inc)	DPinc	DPinc	DPinc	DPinc	DPinc	DPinc	
(48)	.23 (.19)	.23 (.26)	.34 (.34)	(.27)	(.10) (.082)	(.081)	(.10) (.092)	(.13)	(.15)	(.18)	(.10) (.092)	
(48)	.23 (.058)	.23 -.63 -.15		-.32 2.77 1.05 .61 .37	-.40	-.082	.022	-.14	-.19	.43 .73 .57	.68 -.066 .89	
(48)	.23 (.068)	.24 (.24)	.23 (.23)	(100.0) (.10)	(17) (.052)	(.076)	(.12) (.078)	(.17)	(.035)	(.050) (.079)	(.22) (.20) (.20)	
(47-48)	.24 (.044)	.23 -.56 -.032		-.22 2.77 1.57 .58 .41	-.40	-.082	.022	-.12	-.13	.48 1.27 1.02	.96 -.066 1.27	
(49)	.28 (.051)	.24 (.12)	.24 (.18)	(27) (.10)	(0.88) (.044)	(.055)	(.12) (.078)	(.17)	(.028)	(.045) (.060)	(.11) (.12) (.14)	
(49)	.28 (.067)	.24 -.45		.062	1.85	.50	.49	-.075	.15	.55 1.44 1.27	1.18	
(50)	.21 (.077)	.29 -.67		(.058)	(.13) (.084)	(.12)	(.064)	(.099)	(.098)	(.20) (.20)	(.24)	
(50)	.21 (.072)	.29 -.20 .21		-.17 2.84 1.11 .58	.35	.42	-.16	.009	-.16	.16 .43	.63 .46	
(50)	.29 (.28)	.27 -.59		(100.0) (.12)	(10) (.080)	(.083)	(.14) (.10)	(.18)	(.043)	(.054) (.074)	(.22) (.20) (.22)	
(49-50)	.25 (.051)	.27 (.16)	.27 (.17)	(27) (.10)	(0.88) (.044)	(.055)	(.12) (.078)	(.17)	(.028)	(.045) (.060)	(.11) (.12) (.14)	
(51)	.18 (.15)	.79 (.70)	.96 (.76)	.262	2.62	.96	.73	-.19	.45	1.02 2.80 2.22	2.14	
(52)	.47 (.25)	.17 3.13 1.17 .21	.58	1.89	-.10	.015	-.21	-.22	.42	.73	.13 .25	
(52)	.47 (.28)	.17 3.13 1.17 .21	.58	1.89	-.10	.015	-.21	-.22	.42	.73	.13 .25	
(51-52)	.27 (.15)	.068 (.41)	.27 (.41)	.26 3.13 1.99 .61	.63	.1.89	-.10	.015	-.20	.14	2.47 1.93	.79
(57)	.15 (.054)	.36 -.54	.30	-.94	-.68	1.85	.57	.57	-.096	.005	.61 1.25 1.07	1.05
(58)	.29 (.070)	.34 -.71	-.83	-.39	-1.30	2.81	1.22	.56	.45	-.36	-.19	-.13
(57-58)	.20 (.043)	.35 -.63	-.26	-.67	-1.03	1.52	.56	.50	-.36	-.19	-.009	-.11
(59)	.15 (.054)	.34 -.52	.25	.22	1.91	.59	.52			-.10	.059	.63 1.27 1.09
(60)	.29 (.061)	.36 -.76	.74		(.35) (.43)	(.32)	(.10) (.075)	(.099)	(.045)	(.10) (.085)	(.16) (.15)	
(59-60)	.21 (.040)	.35 -.71	-.20		-.85	2.82	1.24	.58	.42	-.34	-.17	-.007
(61)	.15 (.054)	.36 -.47		.035	1.98	.57	.59			-.12	-.17	.48
(61)	.29 (.062)	.36 -.76	.74		-.85	2.82	1.24	.58	.42	-.34	-.17	.48
(62)	.28 (.061)	.32 -.66		-1.061	2.85	1.32	.54	.37	-.42	-.20	-.042	-.15

CONTINUATION



	Detailed regressions with alternate measures of wealth and income										Significance: 1% 5% 10%													
	Table 5 on page 20.										Table 5 on page 20.													
	DA: log(houseValue)	log(houseValue)	mortgagePayment	log(ownIncome)	CT: log(HHinc)	CSD: log(HHinc)	CTA: log(HHinc)	CMAs: log(HHinc)	trust-Z	trust-G	separated	widowed	male	nonemployed	student	employed	domestic	age	obs.	N clusters	pseudo-R <sup>2</sup>			
																			E2	733,043				
(1)	.019 (.28)	.38 (.82)	-.66 (.82)	-.42 (.82)	-.25 (.82)	-.22 (.82)	-.62 (.82)	-.36 (.82)	.84 (.47)	1.26 (.41)	.65 (.22)	.025 (.17)	.38 (.21)	.26 (.26)	-.78 (.39)	-.40 (.92)	.068 (.15)	.51 (.23)	-.174 (.45)	.019,.024 (.006,.007)	E2	733,043		
(2)	.23 (.082)	.051 (.072)	.44 (.28)	-.56 (.32)	.13 (.38)	-.98 (.49)	-.69 (.82)	.034 (.041)	.13 (.12)	-.13 (.20)	1.88 (.13)	-.039 (.050)	.57 (.077)	.58 (.12)	-.13 (.050)	.040 (.078)	1.28 (.082)	.99 (.20)	.98 (.18)	1.37 (.20)	.051,4.49 (.011,.19)	ED	16121,054	
(3)	-.083 (.071)	.32 (.075)	.43 (.21)	-.57 (.24)	-.32 (.33)	-.69 (.70)	-.91 (.70)	-.034 (.090)	-.26 (.15)	2.80 (.10)	1.04 (.092)	.029 (.045)	.44 (.072)	.36 (.082)	-.48 (.11)	-.12 (.094)	-.052 (.14)	.55 (.043)	.59 (.13)	-.067 (.21)	.88 (.20)	-.091,9.15 (.010,.104)	G17	10780,064
{1-3}	.049 (.053)	.18 (.051)	.37 (.16)	-.56 (.19)	-.13 (.24)	-.87 (.32)	-.06 (.31)	-.034 (.065)	.13 (.12)	-.15 (.20)	2.71 (.09)	1.27 (.074)	-.0004 (.033)	.49 (.051)	.42 (.065)	-.48 (.11)	-.16 (.091)	-.060 (.14)	-.13 (.13)	-.12 (.14)	-.017,0.25 (.21)	.27634 (.005,.007)		
(4)																			CMA	E2	0			
(5)	.24 (.067)	.035 (.084)	.41 (.47)	-.55 (.35)	.073 (.33)	.00 (.14)	.21 (.053)	-.030 (.17)	.15 (.38)	-.13 (.38)	1.92 (.12)	-.003 (.043)	.58 (.076)	.53 (.10)	-.14 (.045)	.093 (.10)	.661,301,101,1.02 (.10,.095)				1.38,-.054,4.77 (.16,.102)	CMA	16121,059	
(6)	-.083 (.052)	.31 (.058)	.35 (.17)	-.63 (.23)	-.22 (.19)	-.26 (.100)	-.32 (.14)	-.91 (.13)	2.81 (.14)	1.03 (.13)	-.10 (.042)	-.053 (.045)	-.47 (.056)	-.47 (.064)	-.10 (.14)	-.053 (.031)	-.15 (.15)	-.17 (.14)	.64 (.15)	.57 (.15)	-.098 (.16)	.87,-.093,9.28 (.010,.104)	CMA	G17 10780,066
{4-6}	.038 (.041)	.22 (.048)	.36 (.16)	-.60 (.19)	-.14 (.17)	.21 (.14)	-.030 (.053)	.15 (.17)	2.81 (.13)	1.52 (.085)	-.10 (.030)	-.053 (.039)	-.47 (.049)	-.47 (.064)	-.10 (.030)	-.053 (.026)	-.15 (.14)	-.13 (.098)	.48 (.11)	.95 (.11)	.79 (.11)	-.098,1.09,-.080,7.76 (.005,.006)	CMA	26901
(7)																		CSD	E2	0				
(8)	.29 (.087)	.006 (.083)	.20 (.29)	-.64 (.32)	.073 (.32)	.00 (.12)	-.14 (.046)	-.024 (.12)	.095 (.12)	.40 (.12)	2.00 (.12)	-.020 (.049)	.56 (.090)	.58 (.13)	-.13 (.049)	.093 (.106)	.661,301,101,1.02 (.10,.096)				1.41,-.056,5.05 (.20,.121)	CSD	ED 15516,073	
(9)	-.044 (.082)	.27 (.079)	.36 (.22)	-.68 (.19)	-.092 (.090)	-.02 (.12)	-.284 (.12)	1.07 (.085)	.055 (.045)	.41 (.070)	-.33 (.085)	-.54 (.051)	-.12 (.065)	-.083 (.051)	-.17 (.051)	-.14 (.042)	.38 (.042)	.51 (.045)	.51 (.19)	.41 (.19)	-.21 (.20)	.71,-.091,9.25 (.009,.100)	CSD	G17 9970,071
{7-9}	.11 (.060)	.15 (.057)	.30 (.18)	-.67 (.16)	-.67 (.16)	-.12 (.077)	-.024 (.046)	.095 (.12)	2.84 (.070)	1.37 (.085)	-.12 (.033)	-.083 (.055)	-.54 (.070)	-.12 (.033)	-.083 (.048)	-.15 (.045)	-.074 (.054)	.48 (.13)	.95 (.13)	.75 (.13)	-.21,1.04,-.077,7.53 (.007,.008)	CSD	25486	
(10)																		CT	E2	0				
(11)	.19 (.23)	-.074 (.20)	.18 (.05)	.29 (.09)	.050 (.09)	-.006 (.08)	.54 (.11)	.228 (.30)	.228 (.30)	.54 (.33)	.228 (.21)	-.073 (.36)	.72 (.63)	.86 (.62)	-.20 (.13)	.14 (.21)	.71 (.63)	.83 (.61)	.16 (.61)	.19 (.61)	.54,-.021,1.88 (.029,.313)	CT	ED 3192,146,292	
(12)	.56 (.26)	.35 (.29)	.052 (.61)	.96 (.48)	.10 (.79)	3.191,1.36 (.46)	-.10 (.35)	.006 (.33)	.63 (.54)	-.107 (.39)	.081 (.51)	-.075 (.46)	-.32 (.26)	.651,85 (.53)	.88 (.58)	.77 (.58)	.53 (.53)	.53 (.53)	.53 (.53)	.53 (.53)	.70,-.096,8.84 (.039,.441)	CT	G17 950,106	
{10-12}	.35 (.17)	.059 (.16)	.089 (.52)	.96 (.48)	.050 (.094)	-.006 (.30)	.11 (.64)	3.191,1.82 (.46)	-.14 (.23)	.69 (.54)	.74 (.39)	-.075 (.39)	-.23 (.24)	.62 (.67)	.62 (.61)	.53 (.53)	.63 (.63)	.63 (.63)	.63 (.63)	.63 (.63)	.048,4.21 (.023,.255)	CT	< 4142	

		Significance: 1% 5% 10%			
obs.		survey (age/100) <sup>2</sup>		retired	
pseudo-R <sup>2</sup>		e.c.lustering		age	
N clusters		age		E2 1123.039	
		(0.04) (0.05)		.018 .023	
(1)		.19 .35 -.99 -2.00 .71 -1.74		-.37 .22 .006	
(2)		(.20) (.70) (.89) (.03) (.1.38) (.1.05)		.026 .54 .25	
(3)		.15 .53 -.61 .31 -.99 -.61 .002 -.027		-.37 .22 .006	
(4)		(.054) (.35) (.45) (.36) (.46) (.47) (.011)		.36 (.18) (.1.11) (.1.11) (.1.11) (.1.11) (.1.11)	
(5)		.29 .039 -.50 -.86 -.32 -.1.35		-.094 (.048) (.048) (.048) (.048) (.048)	
(6)		(.070) (.33) (.43) (.37) (.47) (.47)		.006 .61 .1.26 .1.07 .1.05	
(7)		.28 .20 .28 -.60 -.37 -.59 .1.05 .002		-.094 (.047) (.047) (.047) (.047) (.047)	
(8)		(.042) (.23) (.25) (.32) (.32) (.32) (.011)		.006 .61 .1.26 .1.07 .1.05	
(9)		.31 .31 -.1.10 .1.18		-.13 -.20 .45 .53 .44 .68	
(10)		(.1.8) (.61) (.58) (.2.6) (.2.6) (.2.6) (.1.59)		-.11 .81 -.097 .8.93	
(11)		.46 -.83 .21		.11 .1.11	
(12)		(.056) (.35) (.48) (.31) (.10.0) (.01.1)		.002 .26 .095 .45	
(13)		.36 -.63 -.81		-.10 .1.11	
(14)		(.061) (.27) (.37) (.39) (.67)		.001 .1.11	
(15)		.21 .21 -.79 -.22		.001 .1.11	
(16)		(.040) (.20) (.26) (.24)		.001 .1.11	
(17)		.15 .49 -.56		.001 .1.11	
(18)		(.055) (.35) (.42)		.001 .1.11	
(19)		.11 .1.11		.001 .1.11	
(20)		.088 .006 -.024 .011		.001 .1.11	
(21)		(.1.4) (.012) (.036) (.051)		.001 .1.11	
(22)		.088 .006 -.024 .011		.001 .1.11	
(23)		.034 -.008 2.85 1.29		.001 .1.11	
(24)		(.100) (.34) (.49) (.1.3)		.001 .1.11	
(25)		.088 .006 .008 .001		.001 .1.11	
(26)		(.1.4) (.012) (.024) (.035)		.001 .1.11	
(27)		.49 .003 .053		.001 .1.11	
(28)		(.74) (.025) (.092)		.001 .1.11	
(29)		.221 .009 .78 .70		.001 .1.11	
(30)		(.28) (.12) (.19) (.32)		.001 .1.11	
(31)		.13 .74 1.52 1.07 1.03		.001 .1.11	
(32)		(.10) (.17) (.19) (.53)		.001 .1.11	
(33)		.145 -.029 .2.67		.001 .1.11	
(34)		(.56) (.024) (.2.33)		.001 .1.11	
(35)		.145 -.029 .2.67		.001 .1.11	
(36)		(.56) (.024) (.2.33)		.001 .1.11	
(37)		.145 -.029 .2.67		.001 .1.11	
(38)		(.56) (.024) (.2.33)		.001 .1.11	
(39)		.145 -.029 .2.67		.001 .1.11	
(40)		(.56) (.024) (.2.33)		.001 .1.11	
(41)		.145 -.029 .2.67		.001 .1.11	
(42)		(.56) (.024) (.2.33)		.001 .1.11	
(43)		.145 -.029 .2.67		.001 .1.11	
(44)		(.56) (.024) (.2.33)		.001 .1.11	
(45)		.145 -.029 .2.67		.001 .1.11	
(46)		(.56) (.024) (.2.33)		.001 .1.11	
(47)		.145 -.029 .2.67		.001 .1.11	
(48)		(.56) (.024) (.2.33)		.001 .1.11	
(49)		.145 -.029 .2.67		.001 .1.11	
(50)		(.56) (.024) (.2.33)		.001 .1.11	
(51)		.145 -.029 .2.67		.001 .1.11	
(52)		(.56) (.024) (.2.33)		.001 .1.11	
(53)		.145 -.029 .2.67		.001 .1.11	
(54)		(.56) (.024) (.2.33)		.001 .1.11	
(55)		.145 -.029 .2.67		.001 .1.11	
(56)		(.56) (.024) (.2.33)		.001 .1.11	
(57)		.145 -.029 .2.67		.001 .1.11	
(58)		(.56) (.024) (.2.33)		.001 .1.11	
(59)		.145 -.029 .2.67		.001 .1.11	
(60)		(.56) (.024) (.2.33)		.001 .1.11	
(61)		.145 -.029 .2.67		.001 .1.11	
(62)		(.56) (.024) (.2.33)		.001 .1.11	
(63)		.145 -.029 .2.67		.001 .1.11	
(64)		(.56) (.024) (.2.33)		.001 .1.11	
(65)		.145 -.029 .2.67		.001 .1.11	
(66)		(.56) (.024) (.2.33)		.001 .1.11	
(67)		.145 -.029 .2.67		.001 .1.11	
(68)		(.56) (.024) (.2.33)		.001 .1.11	
(69)		.145 -.029 .2.67		.001 .1.11	
(70)		(.56) (.024) (.2.33)		.001 .1.11	
(71)		.145 -.029 .2.67		.001 .1.11	
(72)		(.56) (.024) (.2.33)		.001 .1.11	
(73)		.145 -.029 .2.67		.001 .1.11	
(74)		(.56) (.024) (.2.33)		.001 .1.11	
(75)		.145 -.029 .2.67		.001 .1.11	
(76)		(.56) (.024) (.2.33)		.001 .1.11	
(77)		.145 -.029 .2.67		.001 .1.11	
(78)		(.56) (.024) (.2.33)		.001 .1.11	
(79)		.145 -.029 .2.67		.001 .1.11	
(80)		(.56) (.024) (.2.33)		.001 .1.11	
(81)		.145 -.029 .2.67		.001 .1.11	
(82)		(.56) (.024) (.2.33)		.001 .1.11	
(83)		.145 -.029 .2.67		.001 .1.11	
(84)		(.56) (.024) (.2.33)		.001 .1.11	
(85)		.145 -.029 .2.67		.001 .1.11	
(86)		(.56) (.024) (.2.33)		.001 .1.11	
(87)		.145 -.029 .2.67		.001 .1.11	
(88)		(.56) (.024) (.2.33)		.001 .1.11	
(89)		.145 -.029 .2.67		.001 .1.11	
(90)		(.56) (.024) (.2.33)		.001 .1.11	
(91)		.145 -.029 .2.67		.001 .1.11	
(92)		(.56) (.024) (.2.33)		.001 .1.11	
(93)		.145 -.029 .2.67		.001 .1.11	
(94)		(.56) (.024) (.2.33)		.001 .1.11	
(95)		.145 -.029 .2.67		.001 .1.11	
(96)		(.56) (.024) (.2.33)		.001 .1.11	
(97)		.145 -.029 .2.67		.001 .1.11	
(98)		(.56) (.024) (.2.33)		.001 .1.11	
(99)		.145 -.029 .2.67		.001 .1.11	
(100)		(.56) (.024) (.2.33)		.001 .1.11	
(101)		.145 -.029 .2.67		.001 .1.11	
(102)		(.56) (.024) (.2.33)		.001 .1.11	
(103)		.145 -.029 .2.67		.001 .1.11	
(104)		(.56) (.024) (.2.33)		.001 .1.11	
(105)		.145 -.029 .2.67		.001 .1.11	
(106)		(.56) (.024) (.2.33)		.001 .1.11	
(107)		.145 -.029 .2.67		.001 .1.11	
(108)		(.56) (.024) (.2.33)		.001 .1.11	
(109)		.145 -.029 .2.67		.001 .1.11	
(110)		(.56) (.024) (.2.33)		.001 .1.11	
(111)		.145 -.029 .2.67		.001 .1.11	
(112)		(.56) (.024) (.2.33)		.001 .1.11	
(113)		.145 -.029 .2.67		.001 .1.11	
(114)		(.56) (.024) (.2.33)		.001 .1.11	
(115)		.145 -.029 .2.67		.001 .1.11	

Table 14: **Detailed regressions with dwelling size.** These results are summarised in Table 6 on page 21.

Table 15: Detailed regressions with demographic comparison groups. See Table 9 on page 28 for explanation and summary.  
 Significance: 1% 5% 10%

	All	DA: log(HH inc)	CT: log(HH inc)	CSD: log(HH inc)	CMA: log(HH inc)	trust-N	general trust	separated	divorced	widowed	male	female	student	employed	unemployed	age	survey	CSD fe.	CMA fe.	(age/100) <sup>2</sup>	N clusters	pseudo-R <sup>2</sup>	Obs.	E2	E2	1139.038
(28)	All	.23 (.20)	-.41 (.51)	-1.05 (1.38)	-1.44 (1.81)	1.06 (.32)	.51 (.17)	.09 (.12)	.53 (.17)	.26 (.21)	-.36 (.23)	.21 (.31)	-.047 (.11)	.33 (.18)	-.128 (.31)	.019 (.004)	.023 (.005)									
(29)	All	.24 (.047)	-.16 (.20)	.056 (.41)	-.176 (.58)	1.76 (.10)	1.75 (.041)	-.014 (.060)	45 (.090)	47 (.14)	-.071 (.040)	.016 (.063)	.56 (.068)	1.27 (.14)	1.19 (.13)	1.07 (.15)	1.41 (.15)	-.056 (.009)	5.69 (.97)							ED 24113.053
(30)	All	.33 (.058)	-.39 (.19)	-.40 (.39)	-1.59 (.55)	2.77 (.095)	1.04 (.062)	.26 (.066)	.44 (.075)	.36 (.10)	-.45 (.089)	-.071 (.13)	-.023 (.039)	-.17 (.18)	.37 (.17)	.64 (.18)	.55 (.17)	.66 (.18)	-.20 (.21)	.81 (.18)	-.091 (.009)	9.03 (.93)			G17 12457.064	
(28-30)	All	.27 (.036)	-.29 (.13)	-.22 (.28)	-1.66 (.39)	2.63 (.091)	1.24 (.063)	.08 (.029)	.45 (.043)	.39 (.056)	-.45 (.10)	.11 (.083)	-.11 (.12)	.12 (.027)	-.12 (.038)	.45 (.044)	1.03 (.11)	.95 (.10)	.90 (.11)	-.54 (.18)	1.16 (.12)	-.007 (.003)	.023 (.005)			{3} 37709
(31)	All	-.15 (.18)	-.46 (.25)	-.87 (.28)	.49 (.13)	.61 (.19)	.15 (.26)	-.23 (.41)	-.24 (.23)	-.15 (.076)	.42 (.13)	-.23 (.39)	-.17 (.12)	.15 (.12)	-.11 (.12)	.42 (.13)	-.11 (.13)	.016 (.005)	.020 (.007)	✓				E2 1030.041	22	
(32)	All	.23 (.041)	-.17 (.19)	.14 (.39)	1.80 (.095)	.018 (.024)	.47 (.057)	.42 (.067)	.42 (.066)	.42 (.067)	-.075 (.038)	.093 (.079)	.59 (.071)	1.26 (.14)	1.19 (.13)	1.07 (.14)	1.41 (.13)	-.059 (.009)	5.96 (.94)	✓					ED 24113.058	42
(33)	All	.33 (.052)	-.42 (.13)	-.39 (.35)	2.77 (.10)	1.03 (.12)	.33 (.039)	.45 (.046)	.33 (.057)	-.45 (.079)	-.45 (.061)	-.063 (.13)	-.031 (.033)	-.17 (.033)	-.16 (.033)	.55 (.17)	.67 (.15)	-.21 (.23)	.81 (.14)	-.093 (.006)	9.19 (.67)	✓		G17 12457.066	46	
(31-33)	All	.27 (.032)	-.31 (.097)	-.16 (.26)	2.60 (.099)	1.24 (.065)	.024 (.020)	.46 (.035)	.36 (.043)	-.45 (.079)	-.067 (.060)	.029 (.11)	-.13 (.024)	-.11 (.034)	.48 (.046)	1.02 (.11)	.94 (.11)	.88 (.11)	-.45 (.20)	1.13 (.095)	-.033 (.004)	.021 (.007)	✓		{3} 37590	
(34)	All																								✓	E2 0
(35)	All	.25 (.050)	-.16 (.17)		1.84 (.098)	.014 (.034)	.46 (.057)	.45 (.088)			-.066 (.039)	.12 (.077)	.61 (.068)	1.25 (.16)	1.19 (.16)	1.10 (.17)	1.43 (.19)	-.063 (.009)	6.40 (.99)	✓				ED 23432.069	217	
(36)	All	.32 (.058)	-.44 (.11)		2.80 (.12)	1.07 (.081)	.53 (.062)	.30 (.081)	-.47 (.093)	-.088 (.076)	-.050 (.14)	-.18 (.040)	-.14 (.047)	.41 (.058)	.53 (.18)	.56 (.17)	.57 (.17)	-.28 (.23)	.70 (.17)	-.093 (.009)	9.19 (.93)	✓		G17 11557.070	173	
(34-36)	All	.28 (.038)	-.35 (.093)		2.80 (.12)	1.38 (.062)	.029 (.026)	.44 (.042)	.37 (.060)	-.47 (.093)	-.088 (.076)	-.050 (.14)	-.12 (.028)	-.14 (.040)	.49 (.044)	.94 (.12)	.84 (.11)	.82 (.12)	-.28 (.23)	1.03 (.13)	-.078 (.006)	7.88 (.68)	✓		{2} 34989	
(37)	Aggroup	.40 (.20)	-.68 (.50)	-1.11 (.36)	-.63 (.32)	1.01 (.17)	.50 (.12)	.69 (.17)	.76 (.17)	.46 (.21)	-.27 (.24)	.18 (.31)	-.063 (.11)	.53 (.18)	.56 (.17)	.57 (.17)	-.28 (.23)	.70 (.17)	-.093 (.009)	9.19 (.93)	✓				E2 1129.045	
(38)	Aggroup	.23 (.047)	-.039 (.19)	16 (.40)	-.51 (.39)	1.74 (.10)	-.23 (.041)	.46 (.060)	.52 (.090)			-.072 (.041)	.0005 (.068)	.55 (.14)	1.20 (.13)	1.08 (.15)	.053 (.028)	-.271 (.267)						ED 24085.053		
(39)	Aggroup	.33 (.047)	-.32 (.19)	-.27 (.40)	-23 (.39)	2.78 (.10)	1.02 (.021)	.49 (.45)	-.41 (.41)	-.051 (.062)	.062 (.17)	-.17 (.20)	.36 (.36)	.53 (.58)	.72 (.72)	-.17 (.15)	.85 (.046)	-.046 (.125)	4.65 (.25)	✓				G17 12433.064		

Continued on next page



Table 16: Detailed regressions with demographic comparison groups. See Table 9 on page 28 for explanation and summary.

Continued on next page

Continued on next page



**Table 17: Detailed regressions for income effects, sex, and marriage.** Summary of estimates in the format described on page 16. These results are summarised in Table ?? on page ??.

		log <sub>e</sub> (HH inc)	DA: log <sub>e</sub> (HH inc)	CT: log <sub>e</sub> (HH inc)	CSD: log <sub>e</sub> (HH inc)	CMA: log <sub>e</sub> (HH inc)	region	male	widowed	separated	married	student	domestic	employed	unemployed	refired	age	survey	CT f.e.	CSD f.e.	CMA f.e.	(age/100) <sup>2</sup>	obs.			
(1)	males	.77 (.35)	.20 (.75)	-.59 (.88)	-.66 (1.52)	-.95 (1.81)	-1.24 (1.00)	.96 (.26)	.48 (.25)	.81 (.31)	.38 (.37)	.34 (.75)	.48 (.27)	.48 (.43)	-.106 - (.09)	11.3 11.3	E2	514								
(2)	males	.26 (.069)	-.19 (.29)	.075 (.47)	-.35 (.55)	-.69 (1.44)	-.90 (.098)	1.73 (.14)	.39 (.38)	.47 (.34)			-.049 (.087)	.52 (.19)	.142 (.17)	.109 (.31)	1.61 - (.066)	6.59 5.59	ED	11606						
(3)	males	.60 (.10)	.59 (.26)	-.26 (.32)	-.67 (.47)	-1.15 (.56)	-.90 (1.32)	1.30 (1.13)	.38 (1.10)	.42 (1.11)	.023 (.17)	.055 (.27)	-.16 (.069)	.31 (.087)	.1.81 (.28)	.1.80 (.44)	.72 - (.33)	1.77 (.30)	-11 11	10.6 10.6	G17	5605				
{1-3}	males	.37 (.087)	.23 (.19)	-.14 (.23)	-.52 (.32)	-.92 (.38)	-.90 (.61)	1.44 (.090)	.39 (.068)	.42 (.083)	-.42 (.17)	-.42 (.14)	.022 (.25)	-.12 (.054)	.41 (.062)	1.52 (.16)	.133 (.14)	.063 - (.09)	1.66 9.91	(3)	17725 17725					
(4)	males																							✓		
(5)	males	.25 (.063)	-.22 (.26)	.15 (.29)	-.29 (.43)	.15 (100.0)	-.29 (1.15)	1.82 (.072)	.41 (.094)	.44 (.32)			.006 (.092)	.54 (.14)	.142 (.11)	.11 (.28)	1.64 - (.17)	.069 11.0	✓	CMA	ED	11606				
(6)	males	.60 (.10)	.57 (.22)	-.27 (.25)	-.54 (.60)	.37 (.30)	1.28 (1.18)	.40 (.067)	.32 (.081)	-.41 (.17)	.061 (.10)	-.035 (.23)	-.15 (.073)	.34 (.13)	.1.84 (.31)	.1.81 (.29)	.72 - (.42)	1.78 11.0	-12 11.0	✓	CMA	G17	5598			
{4-6}	males	.35 (.053)	.24 (.17)	-.092 (.19)	-.37 (.35)	.37 (.30)	1.60 (1.12)	.40 (.049)	.37 (.061)	-.41 (.17)	.061 (.10)	-.035 (.23)	-.087 (.057)	.47 (.077)	.1.47 (.12)	.1.33 (.100)	.72 - (.24)	1.67 1.67	- .093 - (.09)	8.94 9.94	✓	CMA	(2)	17204		
(7)	males																							✓		
(8)	males	.27 (.079)	-.22 (.35)	.14 (.35)	.19 (.13)	1.85 (1.44)	.41 (.079)	.46 (.13)			.052 (.090)	.58 (.18)	1.46 (.16)	1.36 (.28)	1.22 - (.22)	1.60 - (.070)	- .070 7.08	✓	CSD	ED	10974					
(9)	males	.60 (.12)	.51 (.28)	-.26 (.26)	.30 (.13)	.85 (.27)	1.31 (1.31)	.30 (1.11)	.21 (.13)	-.43 (.16)	.049 (.27)	-.032 (.13)	-.086 (.077)	.36 (.34)	1.80 (.34)	.77 - (.47)	.1.72 1.72	- .11 11	10.5 10.5	✓	CSD	G17	4889			
{7-9}	males	.37 (.066)	.23 (.22)	-.12 (.21)	.31 (.11)	1.55 (.065)	.37 (.091)	.33 (.16)	-.43 (.13)	.049 (.27)	-.032 (.13)	-.028 (.059)	.48 - (.066)	.1.54 (.16)	.43 (.14)	.1.36 (.24)	.66 - (.19)	1.63 1.63	- .090 8.82	✓	CSD	(2)	15863			
(10)	males																						✓	CT	E2	0
(11)	males																						✓	CT	ED	0

Continued on next page









Table 18: Detailed regressions for spillover effects of others' health. Standard controls are not shown explicitly.

These results are summarised in Table 11 on page 30.

	CSD: health		CMA: health		widowed		separated		domestic employees		non-domestic employees		age		surv ey		f.e./cluster ing (age/100) <sup>2</sup>		N clusters		pseudo-R <sup>2</sup> obs.				
(9)	.22	.16	.096	-.14	-.69	1.14	.69	-1.55	1.36	.53	.26	-.34	.25	-.020	.45	-.1.23	.020	.025	E2	1151	.035				
(10)	.36	.52	-.43	-.34	-.1.29	2.85	.19	.008	1.15	.45	.35	-.45	-.11	-.042	-.16	-.18	.38	.56	.65	-.17	.87	-.084	.8.69		
(9-10)	.35	.49	-.37	-.41	-.1.24	2.72	.24	-.16	1.18	.46	.34	-.45	-.14	.001	-.15	-.18	.39	.58	.65	-.50	.87	-.008	.025		
(11)	.25	.29	-.014	-.56	.95	.77	-.1.35	.59	.16	-.25	.21	-.11	.51	-.1.06	-.1.06	-.017	.022	CMA	E2	1044	.038	.23			
(12)	.35	.53	-.45	-.28	.286	.17	.004	.45	.34	-.45	-.10	-.055	-.16	-.16	.40	.67	.55	.66	-.18	.87	-.085	.8.76			
(11-12)	.34	.50	-.41	-.29	.271	.24	-.094	.46	.33	-.45	-.11	.005	-.15	-.16	.42	.67	.55	.66	-.38	.87	-.025	.023			
(13)	.38	.83	-.91	.86	.69	.68	.33	-.26	.63	-.12	.51	-.1.00	-.1.00	-.018	.023	CSD	E2	814	.046	.23					
(14)	.34	.53	-.41	.289	.097	.43	.30	-.46	-.12	-.099	-.17	-.13	.41	.58	.47	.57	-.23	.77	-.086	.8.95	csd	G17	11782	.064	.188
(13-14)	.34	.56	-.46	.278	.14	.46	.31	-.46	-.12	.083	-.16	-.13	.42	.58	.47	.57	-.44	.77	-.011	.023	csd	{2}	12596		
(15)																			CT	E2	0				
(16)	<b>.65</b>	<b>.16</b>		<b>3.39</b>				<b>.34</b>	<b>.59</b>	<b>-.1.05</b>	<b>-.023</b>	<b>-.19</b>	<b>-.19</b>	<b>-.096</b>	<b>.69</b>	<b>.63</b>	<b>.33</b>	<b>.049</b>	<b>.18</b>	<b>.20</b>	<b>-.081</b>	<b>.8.07</b>			
(15-16)	<b>.65</b>	<b>.16</b>		<b>3.39</b>				<b>.34</b>	<b>.59</b>	<b>-.1.05</b>	<b>-.023</b>	<b>-.19</b>	<b>-.19</b>	<b>-.096</b>	<b>.69</b>	<b>.63</b>	<b>.33</b>	<b>.049</b>	<b>.18</b>	<b>.20</b>	<b>-.081</b>	<b>.8.07</b>			
Significance: 1% 5% 10%																									

## B Survey descriptions, consistency, and summary statistics

This appendix provides a qualitative look at some of the key survey variables with the aim of assessing the consistency of results from different surveys.

### B.1 Survey descriptions

We make use of three surveys conducted across Canada: the second wave of the Equality, Security, and Community survey (ESC2) from 2002-2003, described by ? and online at <http://grad.econ.ubc.ca/cpbl/esc2>; the Ethnic Diversity Survey (EDS) from 2002; and the General Social Survey Cycle 17 (GSS) from 2003. The latter two surveys are described in detail on Statistics Canada's web site. See also Helliwell and Huang (2005) for some further description of, and differences between, these surveys. Survey data at the level of the individual respondent were accessed through Statistics Canada's Research Data Centre located at UBC.

The surveys comprise a total of ~70,000 individuals and they have some key questions in common. Most importantly, respondents were asked to rate their overall life satisfaction on a 5 or 10 point scale. Figure 4 on page 66 shows how the responses to these questions were distributed in each survey. Responses from the EDS' five point scale are shown rescaled to range between 1 and 10 as in the other surveys. Also included for comparison is the distribution from the 2005 General Social Survey, Cycle 19. The shape of the distribution is remarkably repeatable between the two surveys, GSS17 and GSS19, which have the most similar sequence of questions on subjective well-being, although they may indicate a significant decrease in average reported satisfaction. Life satisfaction reportde in the ESC2, at about the same time as the GSS17, appears to be similarly distributed except for the higher preponderance of fully satisfied respondents. Not surprisingly, the less detailed scale used in the EDS cannot resolve the features evident in the other surveys, yet it nevertheless indicates a similar mean scaled response as the others.

Numerous other questions relevant to social interactions and socioeconomic and cultural backgrounds were posed in these surveys. Table 19 on page 65 shows the availability of some of these measures and compares the question wording used. In some cases, such as for the important measure of trust in neighbours, different questions were asked but, after being scaled, will be used as equivalent measures in our analysis.

Some differences between responses concerning trust and life satisfaction in GSS17 and GSS19 could be due to the order of modules in the questionnaires. In GS17, the well-being module is asked in the initial section, while in GSS19 a similar section of modules is asked in the middle of the survey, after details of the time use diary, unpaid work, and childcare had been covered.

There were also some notable sampling differences between the surveys.

Data for Cycle 19 of the GSS were collected in 11 monthly samples from January to November 2005 with data collection for the November sample extending until mid-December. The sample was evenly distributed over the 11 months. Questions asked as part of the survey had a variety of reference periods, such as the past week, the past 12 months, and the past 5 years.

EDS was a post-censal survey. The target population was a subset (the majority) of those who were selected to answer the long form of the 2001 census questionnaire and represents 23 million Canadians. However, the sample selection was based on a stratification by ethnic origin, place of birth and place of birth of parents, rather than the geographic distribution behind the GSS sample selection. The EDS is therefore generally unsuitable for use in fine-scale geographic analysis.

### B.2 Consistency of place-based characteristics

A key feature of all the surveys used is the availability of high resolution in the geographic location of respondents' places of residence. Because our work relies on the possibility that significant determinants of life satisfaction are rooted in geographic locations, this section assesses the repeatability of these features over time and between surveys.

#### B.2.1 Trust in neighbours

Figure 5 on page 67 shows that questions about trust in neighbours elicit differences between provinces that are consistent from one survey to another. The agreement between GSS17 and EDS, in particular, is very close and it may be noted that

these surveys pose the question in the same way (Table 19 on page 65) as a five-point subjective assessment. The ESC2 survey asks a much more specific question which concerns the likelihood, on a three-point scale, of a neighbour returning a lost wallet. Nevertheless, responses from this measure are still very strongly correlated with those from the other surveys. Figures 6 and 7 show the same correlations at the CMA and CSD level and show a similar consistency. Taken together, these comparisons for different geographic scales suggest transforming the trust in neighbours means  $\langle T \rangle_{\text{ESC2}}$  from ESC2 in order to be more comparable to those from the GSS17 and EDS:

$$\langle T \rangle_{\text{rescaled}} = -.51 \pm .07 + \langle T \rangle_{\text{ESC2}} (1.72 \pm 0.10)$$

## B.2.2 Life satisfaction

Figures 8 to 10 present the analogous set of correlations for survey responses to the life satisfaction question, aggregated by province, CMA, and CSD. In comparison with the measure of trust there is less correlation between surveys for life satisfaction. It can be seen, especially in the case of CSDs, that the correlation is higher amongst regions with larger populations (represented by dark dots). This suggests that the relatively poor correlation may simply reflect the well recognised large individual variance in life satisfaction that results from aspects of personality and other factors which are non-geographic. In addition, however, there are as noted above significant differences in the mean reported life satisfaction between surveys, especially in the case of the EDS for which the question was given with a five-point scale.

These findings have several implications for statistical methods. First, the large variance of life satisfaction at the individual level combined with relatively precise measurements of geographical means of some of its correlates, such as trust in neighbours, suggests that there is a large advantage to using individual level data in regressions for life satisfaction when testing for effects of place-based determinants. This is indeed our primary method in this study. It also suggests that large sample sizes are likely to be necessary when estimating the effects of variables at small geographic scales.

Secondly, for any variables with significant dispersion of means from smaller regions, such as is evident for life satisfaction, aggregation of data from different surveys may prove useful in reducing standard errors of geographic means. In the section to follow, this is applied to improve the precision of estimates and rankings of Canadian regions by their mean life satisfaction.

Thirdly, estimates of mean life satisfaction should be adjusted for survey means before further aggregation. This is also demonstrated in Section B.3.

## B.2.3 Other variables

Figures 11 to 22 show similar survey comparisons for geographic means of other variables. In general, regions with higher populations and therefore sample sizes show more consistent results. Most variables are available for only a subset of the three surveys.

## B.3 Variation across geographical regions

Figures 23 to 28 show the range of multi-survey means for life satisfaction and trust in neighbours calculated at the spatial scales of province and CMA.<sup>18</sup> In each figure, each dark horizontal bar shows the estimated mean and its standard error for one region, which is named to the left. Each mean  $V$  and standard error  $S$  are calculated by taking a weighted mean over the results from individual surveys,

$$V_r = \frac{\sum_i \frac{v_{ir}}{\sigma_{ir}^2}}{\sum_i \frac{1}{\sigma_{ir}^2}} \quad (5)$$

$$S_r = \sqrt{\frac{1}{\sum_i \frac{1}{\sigma_{ir}^2}}}$$

where  $v_{ir}$  and  $\sigma_{ir}$  indicate the mean over region  $r$  from survey  $i$ . The surveys involved in each mean are listed to the right of the plots and the individual survey values are shown as light horizontal bars just above the dark bar corresponding to

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<sup>18</sup>Means calculated at the CSD level are available from the author.

their mean. All bars are four standard deviations (standard error of the mean) wide and therefore indicate 95% confidence intervals.

In the case of reported life satisfaction, these charts are shown in two forms. In the second of each pair, the geographic averages from each survey have been adjusted to remove the differences in overall means from each of the three surveys, before being aggregated as in equation (5). As discussed above, this is especially useful considering the difference in the way life satisfaction was measured in the EDS survey. With this correction, there is in general a good consistency between different surveys, especially for large regions. This again indicates that weak correlation between surveys for life satisfaction is largely a result of the high degree of what might be measured as individual fixed effects in panel data; with adequate sample sizes, significant geographic differences in average life satisfaction are measurable and reproducible.

This geographic variation is even more evident for aggregated trust in neighbours, as shown in Figures 27 to 28.

## B.4 Life satisfaction rankings based on ESC2 alone

The ESC2 survey generated somewhat more variation between geographical regions in reported life satisfaction than GSS17 or EDS. The remaining figures show the variation and standard errors based on this survey alone, which made its way into the public press in early 2008 as a ranking of Canadian cities by life satisfaction. Here it is evident that without inclusion of survey data from other surveys, the differences between CMA regions are barely significant.

Table 19: Summary of survey variable definitions.

Variable	GSS17	ESCI	ESC2	EDS	GSS19	
lsatis	✓	✓	✓	✓	✓	<b>GSS17:</b> Using the same scale, how do you feel about your life as a whole right now? <b>ESCI:</b> ? <b>ESC2:</b> Now a question about life satisfaction. On a scale of 1-10 where ONE means dissatisfied and TEN means satisfied, all things considered how satisfied are you with your life as a whole these days? <b>EDS:</b> Using a scale of 1 to 5, where 1 means not satisfied at all and 5 means very satisfied. All things considered, how satisfied are you with your life as a whole these days? <b>GSS19:</b> Using the same scale, how do you feel about your life as a whole right now?
trustNeighbour	✓	✓	✓	✓	✓	<b>GSS17:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people: .people in your neighbourhood? <b>ESCI:</b> If you lost a wallet or a purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by someone who lives close by; would you say very likely, somewhat likely or not at all likely? <b>ESC2:</b> If you lost a wallet or a purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by someone who lives close by; would you say very likely, somewhat likely or not at all likely? <b>EDS:</b> [scaled]: Using a scale of 1 to 5 where 1 means cannot be trusted at all and 5 means can be trusted a lot, how much do you trust each of the following groups of people: People in your neighborhood? <b>GSS19:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people:... people in your neighbourhood?
trustBool	✓	✓	✓	✓	✓	<b>GSS17:</b> Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people? <b>ESCI:</b> Now some questions about how much you trust other people. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people? <b>ESC2:</b> Now some questions about how much you trust other people. Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people? <b>EDS:</b> Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people? <b>GSS19:</b> [scaled]: Generally speaking, would you say that most people can be trusted or that you cannot be too careful in dealing with people?
godImportance	✓	✓	✓	✓	✓	<b>GSS17:</b> [scaled]: How important are your religious or spiritual beliefs to the way that you live your life? Would you say it is: <b>ESCI:</b> [scaled]: How important is religion in your life? Would you say very important, somewhat important, not very important, or not important at all? <b>ESC2:</b> [scaled]: How important is religion in your life? Would you say very important, somewhat important, not very important, or not important at all? <b>EDS:</b> [scaled]: Using a scale of 1 to 5, where 1 is not important at all and 5 is very important, how important is your religion to you? <b>GSS19:</b> [scaled]: How important are your (religious or) spiritual beliefs to the way you live your life? Would you say they are:
godParticipateFrequency	✓	✓	✓		✓	<b>GSS17:</b> Other than on special occasions, (such as weddings, funerals or baptisms) how often did you attend religious services or meetings in the last 12 months? Was it: <b>ESCI:</b> How often do you attend religious services, NOT including weddings and funerals? <b>ESC2:</b> How often do you attend religious services, NOT including weddings and funerals? <b>GSS19:</b> Religious attendance of the respondent.
happy	✓	✓			✓	<b>GSS17:</b> [scaled]: Presently, would you describe yourself as: <b>ESCI:</b> [scaled]: Now a question about life satisfaction. On a scale of 1-10 where ONE means dissatisfied and TEN means satisfied, all things considered how satisfied are you with your life as a whole these days? <b>GSS19:</b> [scaled]: Presently, would you describe yourself as:
health	✓	✓	✓		✓	<b>GSS17:</b> [scaled]: In general, would you say your health is: <b>ESCI:</b> [scaled]: How would you describe your health these days, would you say: poor, fair, good, very good, or excellent? <b>ESC2:</b> [scaled]: How would you describe your health these days, would you say: poor, fair, good, very good, or excellent? <b>GSS19:</b> [scaled]: In general, would you say your health is:

Table 19: Summary of survey variable definitions.

Variable	GSS17	ESCI	ESC2	EDS	GSS19	
logTenureHouse	✓	✓	✓			<b>GSS17:</b> How long have you lived in this dwelling? <b>ESC2:</b> How many years have you lived at your current address? <b>GSS19:</b> How long have you lived in this dwelling?
motherSchoolingYears	✓	✓	✓	✓		<b>GSS17:</b> Highest level of education obtained by the respondent's mother - 10 groups. <b>ESCI:</b> What is the highest level of education that your MOTHER completed? <b>ESC2:</b> What is the highest level of education that your MOTHER completed? <b>GSS19:</b> Highest level of education obtained by the respondent's mother - 10 groups.
fatherSchoolingYears	✓	✓	✓	✓		<b>GSS17:</b> Highest level of education obtained by the respondent's father - 10 groups. <b>ESCI:</b> What about your FATHER, what is the highest level of education he completed? <b>ESC2:</b> What about your FATHER, what is the highest level of education he completed? <b>GSS19:</b> Highest level of education obtained by the respondent's father - 10 groups.
belongCommunity	✓			✓		<b>GSS17:</b> [scaled]: How would you describe your sense of belonging to your local community? Would you say it is: <b>GSS19:</b> [scaled]: How would you describe your sense of belonging to your local community? Would you say it is:
belongCountry	✓		✓	✓		<b>GSS17:</b> [scaled]: What about (your sense of belonging) to Canada? <b>EDS:</b> [scaled]: Some people have a stronger sense of belonging to some things than others. Using a scale of 1 to 5, where 1 is not strong at all and 5 is very strong, how strong is your sense of belonging to Canada? <b>GSS19:</b> [scaled]: What about (your sense of belonging) to Canada?
belongEthnicity			✓			<b>EDS:</b> [scaled]: Some people have a stronger sense of belonging to some things than others. Using a scale of 1 to 5, where 1 is not strong at all and 5 is very strong, how strong is your sense of belonging to your ethnic or cultural group(s)?
belongFamily			✓			<b>EDS:</b> [scaled]: Some people have a stronger sense of belonging to some things than others. Using a scale of 1 to 5, where 1 is not strong at all and 5 is very strong, how strong is your sense of belonging to your family?
belongProvince	✓		✓	✓		<b>GSS17:</b> [scaled]: What about (your sense of belonging) to your province? <b>EDS:</b> [scaled]: Some people have a stronger sense of belonging to some things than others. Using a scale of 1 to 5, where 1 is not strong at all and 5 is very strong, how strong is your sense of belonging to your province? <b>GSS19:</b> [scaled]: What about (your sense of belonging) to your province?
belongTown			✓			<b>EDS:</b> [scaled]: Some people have a stronger sense of belonging to some things than others. Using a scale of 1 to 5, where 1 is not strong at all and 5 is very strong, how strong is your sense of belonging to your town, city or municipality?
commutingWeekly	✓					<b>GSS17:</b> (RAW CODEBOOK INFO MISSING)
confidenceBanks	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .banks?
confidenceBigCorps	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .major corporations?
confidenceHealthcare	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .the health care system?
confidenceJustice	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .the justice system and courts?
confidenceLocalCorps	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .local merchants and business people?
confidenceParliament	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .federal parliament?
confidencePolice	✓	✓	✓	✓		<b>GSS17:</b> [scaled]: How much confidence do you have in: .the police? <b>ESCI:</b> If you lost a wallet or a purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by a police officer; would you say very likely, somewhat likely or not at all likely? <b>ESC2:</b> If you lost a wallet or a purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found by a police officer; would you say very likely, somewhat likely or not at all likely?
confidenceSchools	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .the school system?
confidenceWelfare	✓					<b>GSS17:</b> [scaled]: How much confidence do you have in: .the welfare system?
ethnicHeterophile	✓					<b>GSS17:</b> [scaled]: Using a scale of 1 to 5, where 1 is not important at all and 5 is very important, how important is it for you to establish and maintain ties: .with people who have different ethnic or cultural origins than you?

Table 19: Summary of survey variable definitions.

Variable	GSS17	ESCI	ESC2	EDS	GSS19	
ethnicHomophile	✓					<b>GSS17:</b> [scaled]: Using a scale of 1 to 5, where 1 is not important at all and 5 is very important, how important is it for you to establish and maintain ties: . with other people who have similar ethnic or cultural origin as you?
ethnicImportance			✓			<b>EDS:</b> Maximum of reported importances of ethnicity
foreignBorn			✓			<b>EDS:</b> Derived - Place of birth - inside or outside Canada
gaySpouse	✓					<b>GSS17:</b> Type of partner the respondent has within the household. <b>GSS19:</b> Type of partner the respondent has within the household.
healthBadSleep	✓					<b>GSS17:</b> [bool,=0]: Do you regularly have trouble going to sleep or staying asleep? <b>GSS19:</b> [bool,=0]: Do you regularly have trouble going to sleep or staying asleep?
healthStress	✓					<b>GSS17:</b> [scaled]: Thinking about the amount of stress in your life, would you say that most days are: <b>GSS19:</b> [scaled]: Thinking about the amount of stress in your life, would you say that most days are:
helpfulNeighbours	✓					<b>GSS17:</b> [scaled]: Would you say this neighbourhood is a place where neighbours help each other? <b>GSS19:</b> [scaled]: Would you say this neighbourhood is a place where neighbours help each other?
honestNeighbour	✓					<b>GSS17:</b> [scaled]: If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found: .by someone who lives close by? Would it be:
honestStranger	✓					<b>GSS17:</b> [scaled]: If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it if it was found: .by a complete stranger?
honesty	✓					<b>GSS17:</b> (RAW CODEBOOK INFO MISSING)
knowNeighbours	✓					<b>GSS17:</b> [scaled]: Now I would like to ask you a few questions about your more immediate neighbourhood. Would you say that you know: <b>GSS19:</b> [scaled]: Now I would like to ask you a few questions about your more immediate neighbourhood. Would you say that you know:
livingWithFriends	✓					<b>GSS17:</b> Number of respondent's close friends living in household. <b>GSS19:</b> Number of respondent's close friend(s) living in household.
logTenureCity						<b>GSS19:</b> Length of time respondent has lived in current city or local community.
logTenureNeighbourhood						<b>GSS19:</b> Length of time respondent has lived in current neighbourhood.
mastery	✓					<b>GSS17:</b> [scaled]: Mastery scale.
noReligion	✓		✓			<b>GSS17:</b> Religion of respondent. In fifteen categories. <b>EDS:</b> Derived - Religion - Christian or non-Christian <b>GSS19:</b> Religion of respondent. In fifteen categories.
safeAtHome	✓					<b>GSS17:</b> [scaled]: When alone in your home in the evening or at night, do you feel:
safeAtNight	✓					<b>GSS17:</b> [scaled]: How safe do you feel from crime walking alone in your area after dark? Do you feel:
satisFinances	✓					<b>GSS17:</b> [scaled]: Please rate your feelings about certain areas of your life, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: .your finances? <b>GSS19:</b> [scaled]: Please rate your feelings about them, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: your finances?
satisHealth	✓					<b>GSS17:</b> [scaled]: Please rate your feelings about certain areas of your life, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: .your health? <b>GSS19:</b> [scaled]: Please rate your feelings about them, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: your health?
satisJob	✓					<b>GSS17:</b> [scaled]: Please rate your feelings about certain areas of your life, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: .your job or main activity? <b>GSS19:</b> [scaled]: Please rate your feelings about them, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: your job or main activity?

Table 19: Summary of survey variable definitions.

Variable	GSS17	ESCI	ESC2	EDS	GSS19	
satisTime	✓				✓	<b>GSS17:</b> [scaled]: Please rate your feelings about certain areas of your life, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: .the way you spend your other time? <b>GSS19:</b> [scaled]: Please rate your feelings about them, using a scale of 1 to 10 where 1 means "Very dissatisfied" and 10 means "Very satisfied". What about: the way you spend your other time?
trustColleagues	✓		✓	✓	✓	<b>GSS17:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people: .people you work with or go to school with? <b>EDS:</b> [scaled]: Using a scale of 1 to 5 where 1 means cannot be trusted at all and 5 means can be trusted a lot, how much do you trust each of the following groups of people: People that you work with or go to school with? <b>GSS19:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people:... people you work with or go to school with?
trustFamily	✓		✓	✓	✓	<b>GSS17:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people: .people in your family? <b>EDS:</b> [scaled]: Using a scale of 1 to 5 where 1 means cannot be trusted at all and 5 means can be trusted a lot, how much do you trust each of the following groups of people: People in your family? <b>GSS19:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people:... people in your family?
trustNeighbourFraction	✓					<b>GSS17:</b> [scaled]: Would you say that you trust:
trustStrangers	✓				✓	<b>GSS17:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people: .strangers? <b>GSS19:</b> [scaled]: Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot', how much do you trust each of the following groups of people:... strangers?
valueSocial	✓					<b>GSS17:</b> [scaled]: Using a scale of 1 to 5, where 1 is not important at all and 5 is very important, how important is it for you to establish and maintain ties: .with other people?

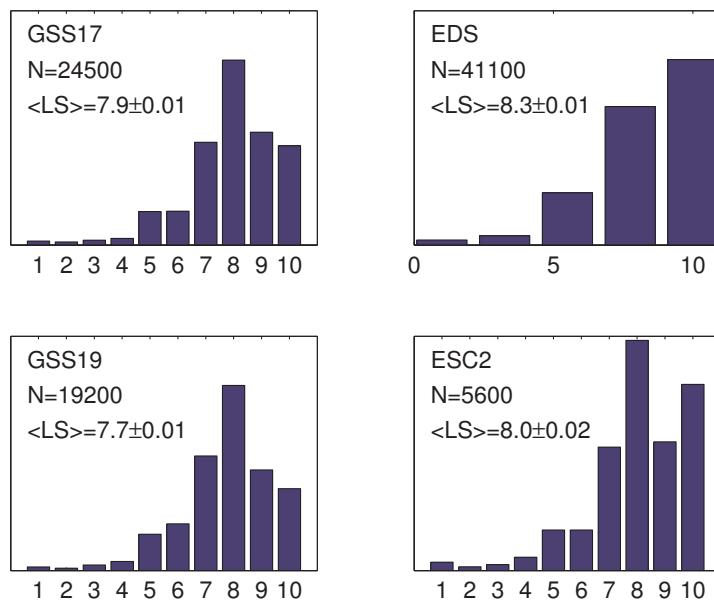
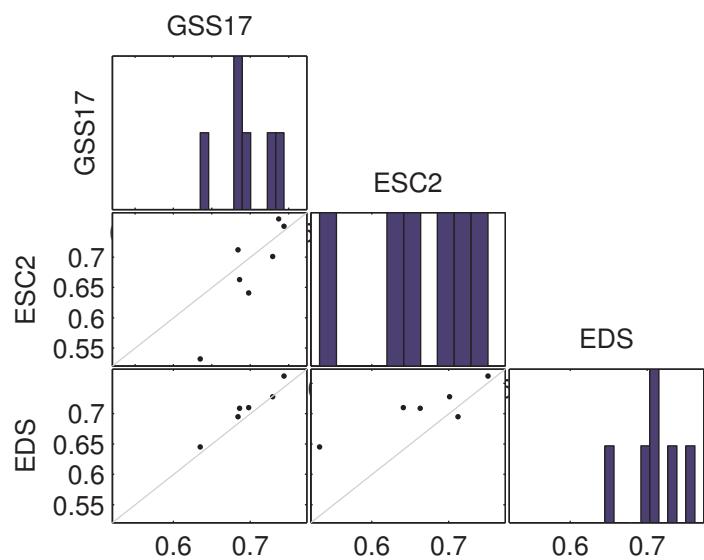
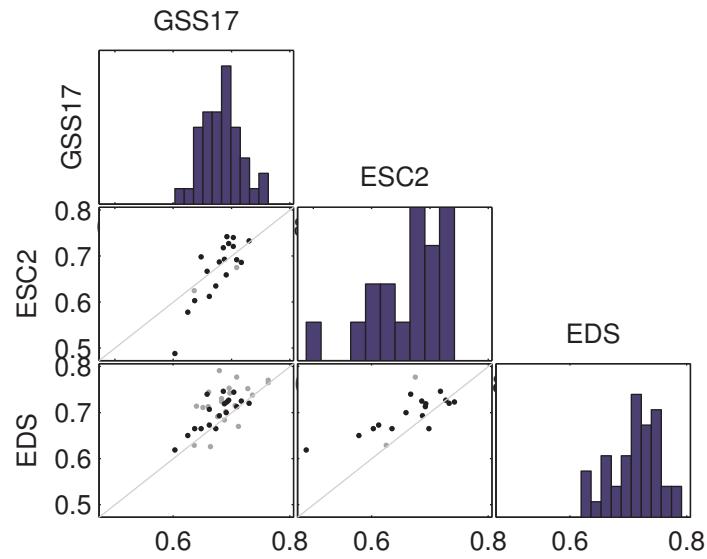


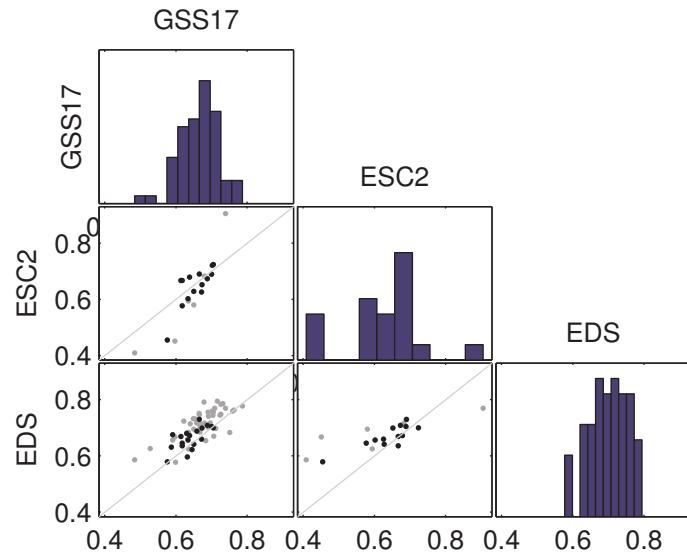
Figure 4: **Histograms of reported *life satisfaction* in several Canada-wide surveys.** Estimates and standard errors of the mean are shown, as are sample sizes.



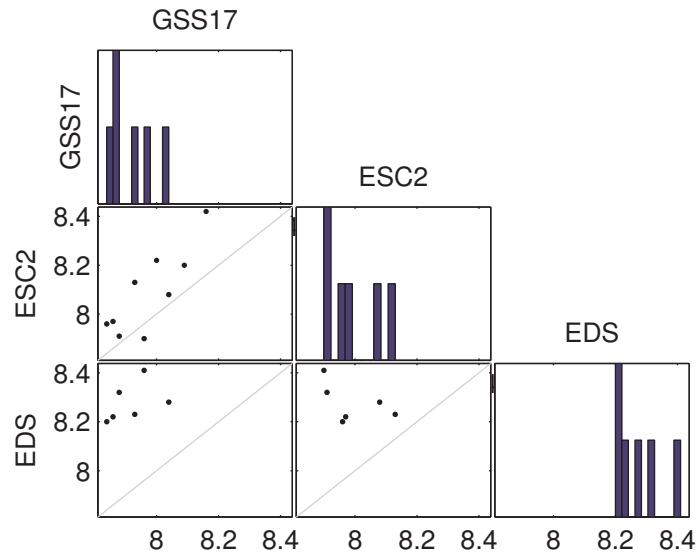
**Figure 5: Correlation between surveys of mean trust in neighbours by province.** Trust in neighbours is scaled to lie between 0 and 1. The light gray line represents perfect correspondence. Along the diagonal are shown histograms of the provincial averages.



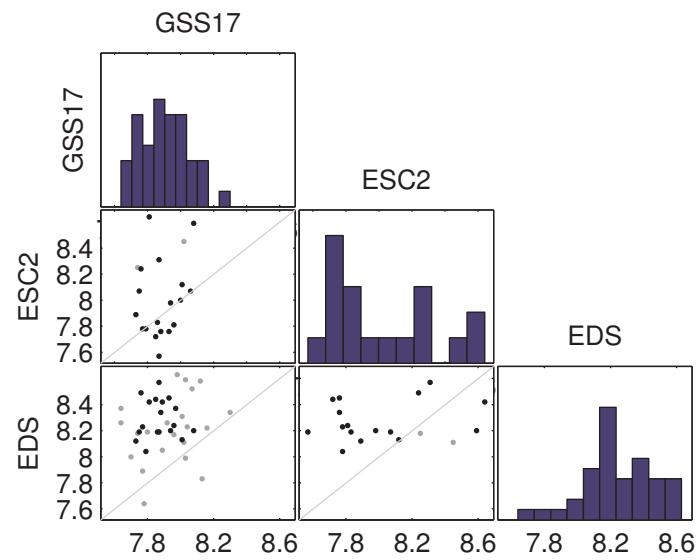
**Figure 6: Correlation between surveys of mean trust in neighbours by CMA.**  
 In this and the subsequent several figures, the heavier dots represent regions with higher populations than the lighter dots.



**Figure 7: Correlation between surveys of mean trust in neighbours by CSD.**



**Figure 8: Comparison of provincial mean life satisfaction from different surveys.**



**Figure 9: Comparison of CMA mean life satisfaction from different surveys.**

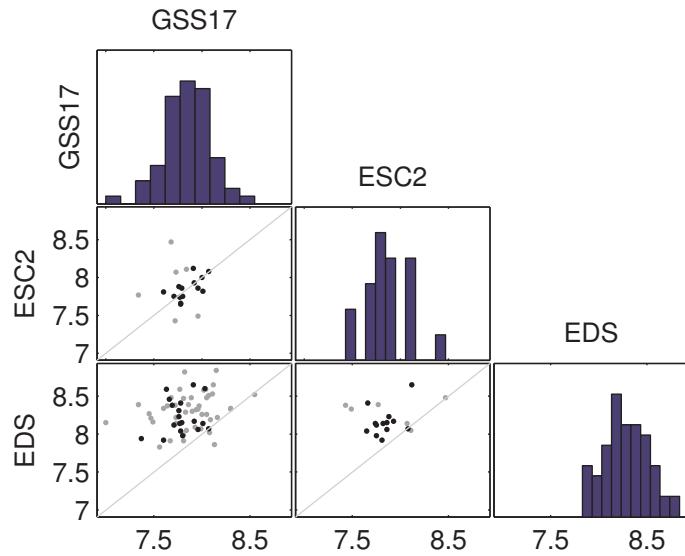


Figure 10: Comparison of CSD mean life satisfaction from different surveys.

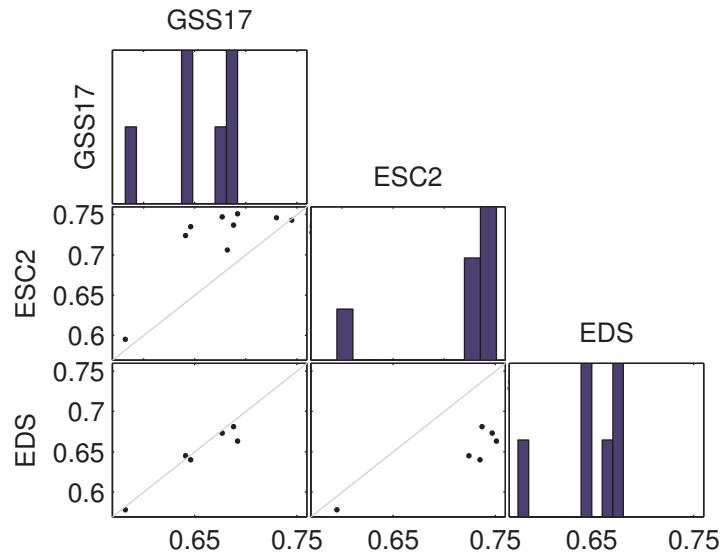


Figure 11: Comparison of provincial mean *importance of religion* from different surveys.

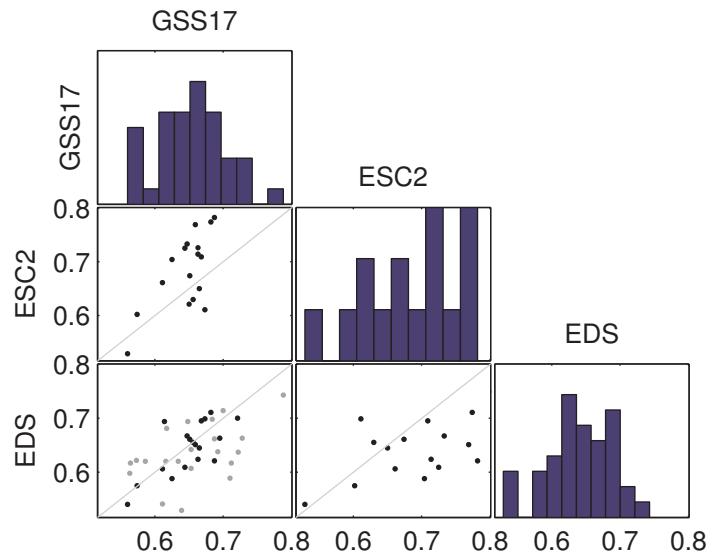


Figure 12: Comparison of CMA mean *importance of religion* from different surveys.

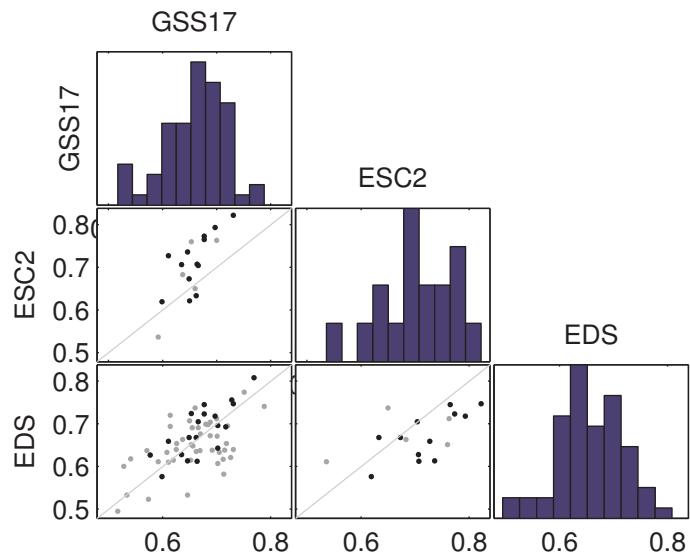
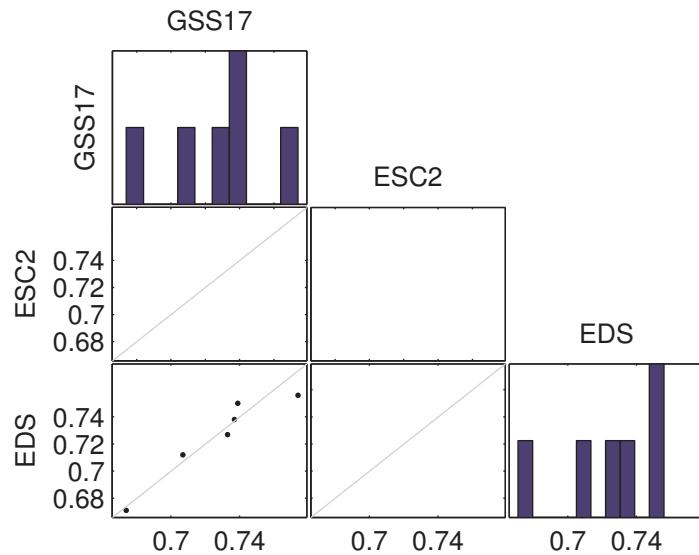
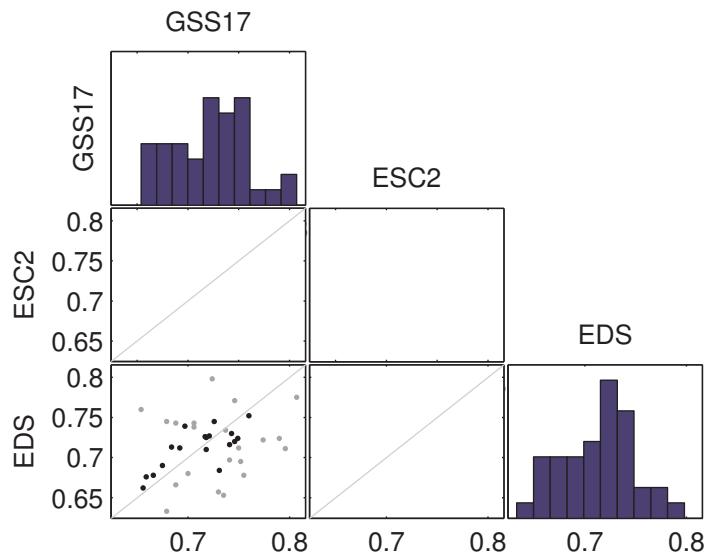


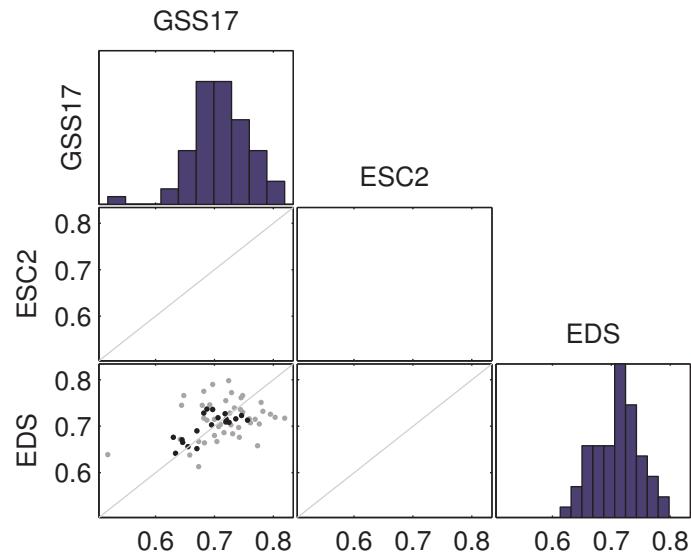
Figure 13: Comparison of CSD mean *importance of religion* from different surveys.



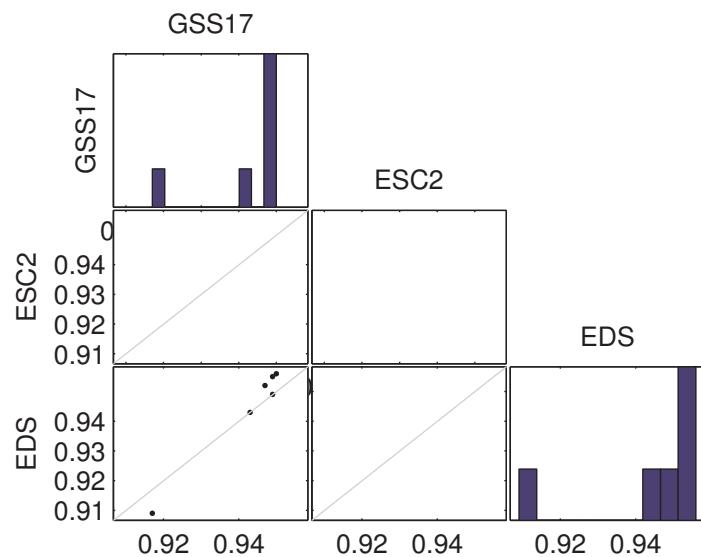
**Figure 14: Comparison of provincial mean trust in colleagues from different surveys.**



**Figure 15: Comparison of CMA mean trust in colleagues from different surveys.**



**Figure 16: Comparison of CSD mean trust in colleagues from different surveys.**



**Figure 17: Comparison of provincial mean trust in family from different surveys.**

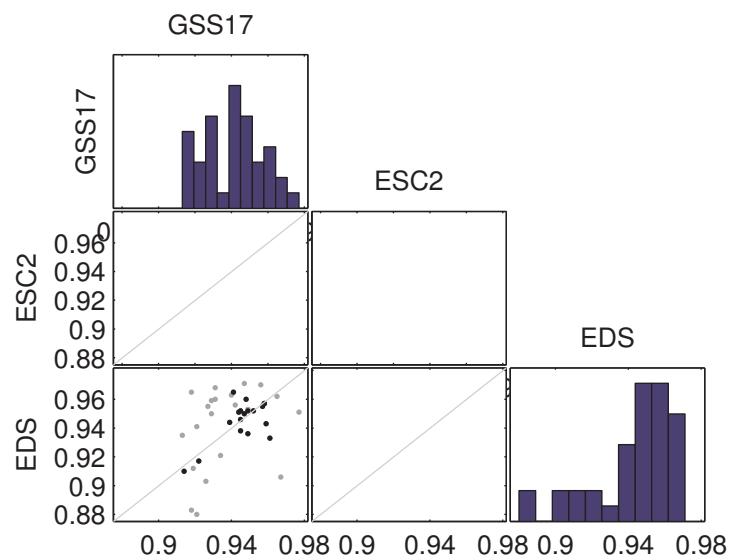


Figure 18: **Comparison of CMA mean trust in family from different surveys.**

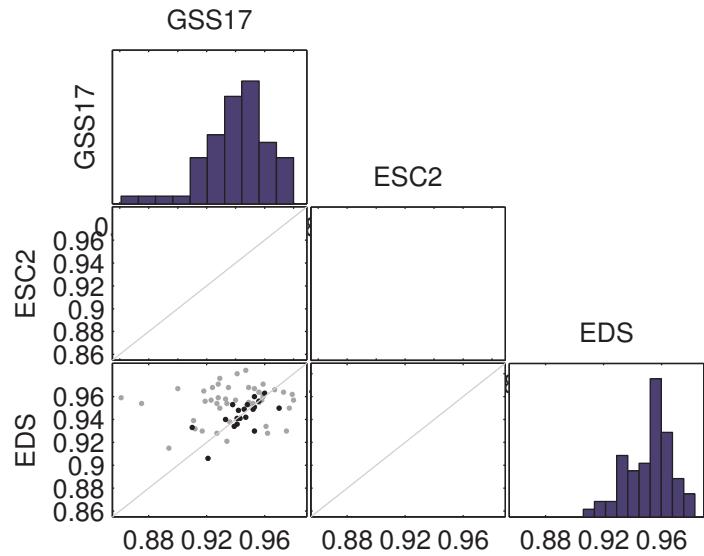


Figure 19: **Comparison of CSD mean trust in family from different surveys.**

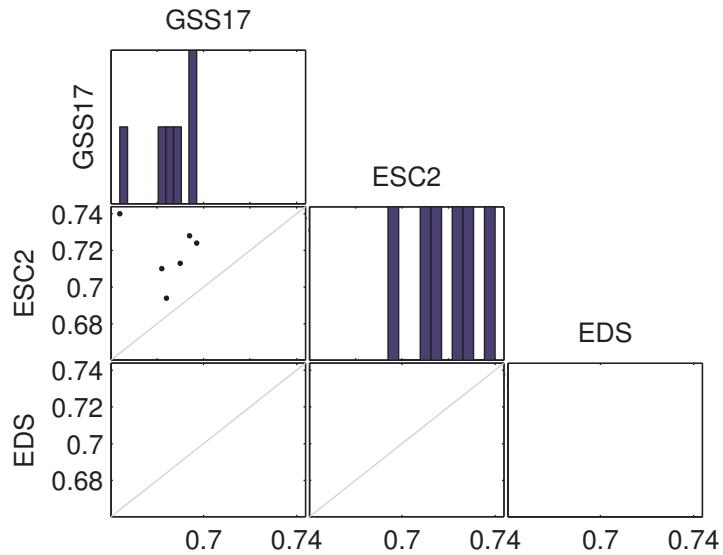
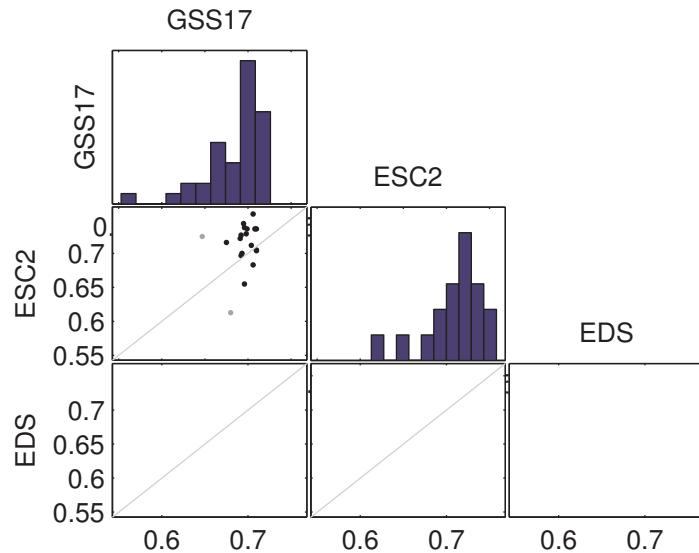
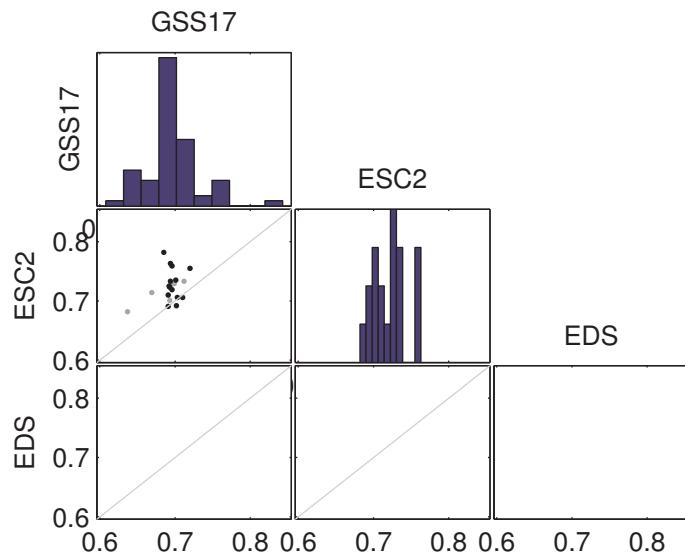


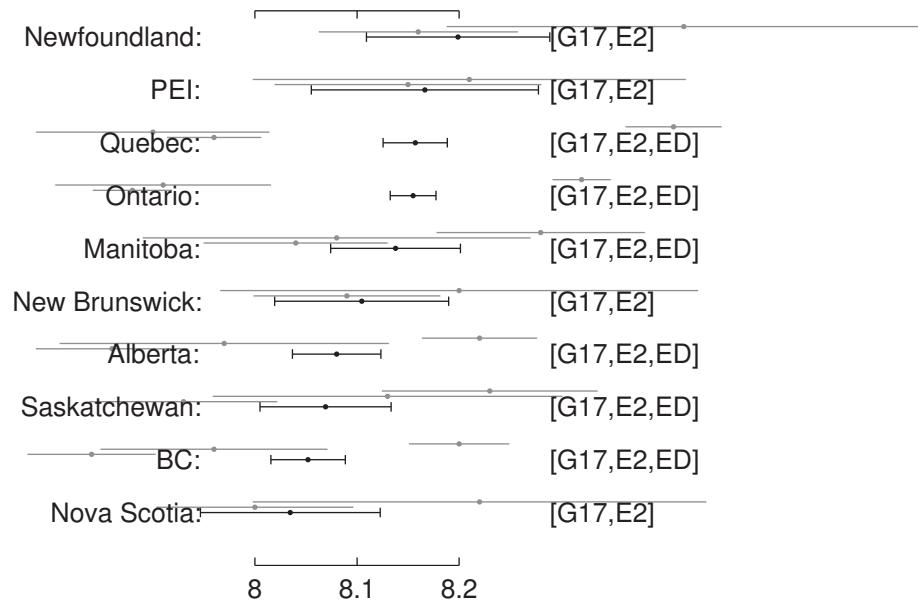
Figure 20: **Comparison of provincial mean subjective health from different surveys.**



**Figure 21: Comparison of CMA mean subjective health from different surveys.**



**Figure 22: Comparison of CSD mean subjective health from different surveys.**



**Figure 23: Life satisfaction means by province.** In this and the subsequent several figures, the right column indicates which surveys provide sufficient samples to include in the means. The light error bars show the individual means from each of these surveys, while the darker bars show the appropriately weighted mean using all available surveys.

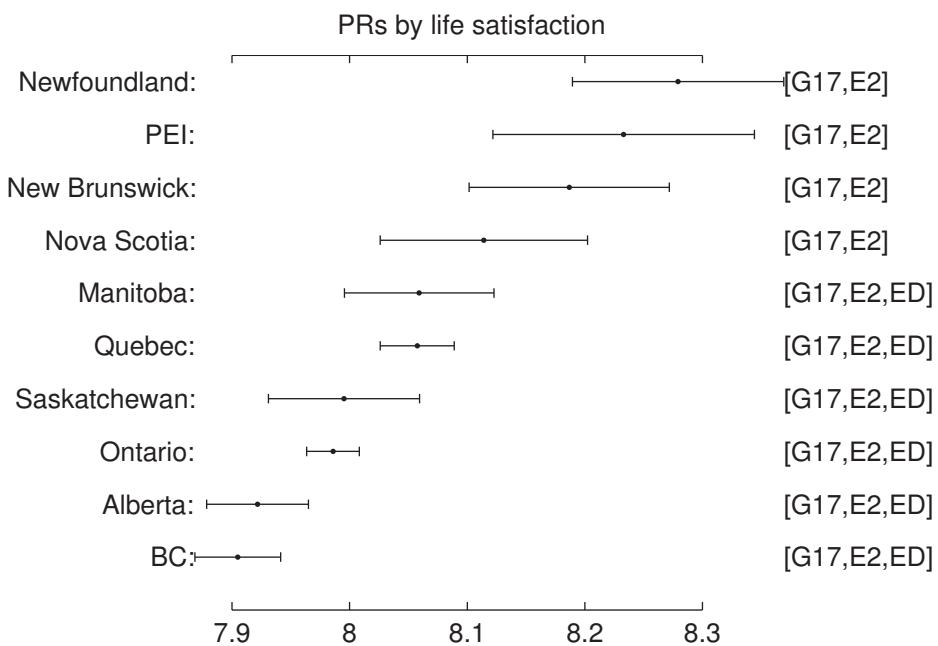


Figure 24: Life satisfaction means by province, corrected for survey averages.

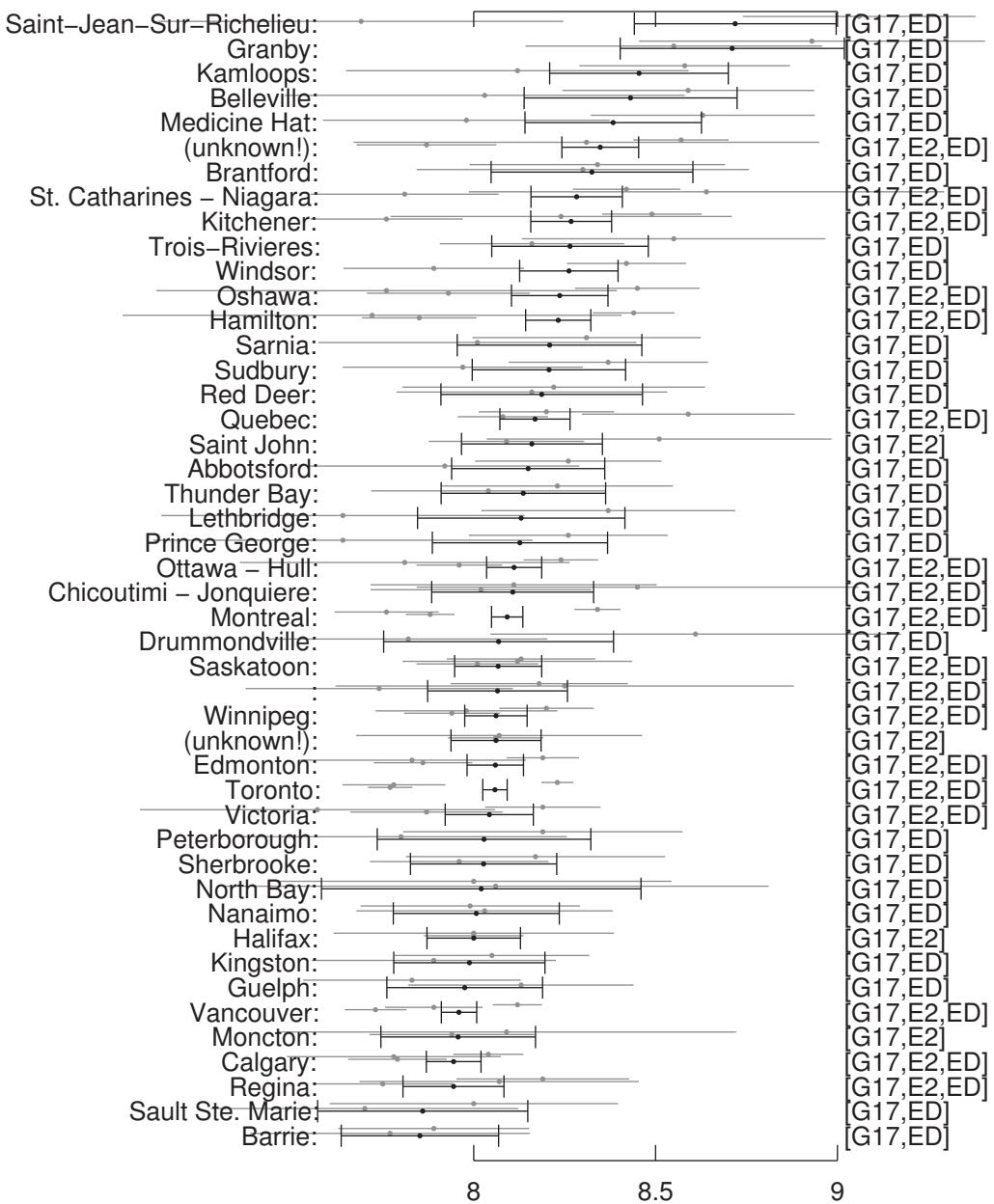


Figure 25: **Life satisfaction means by CMA.**

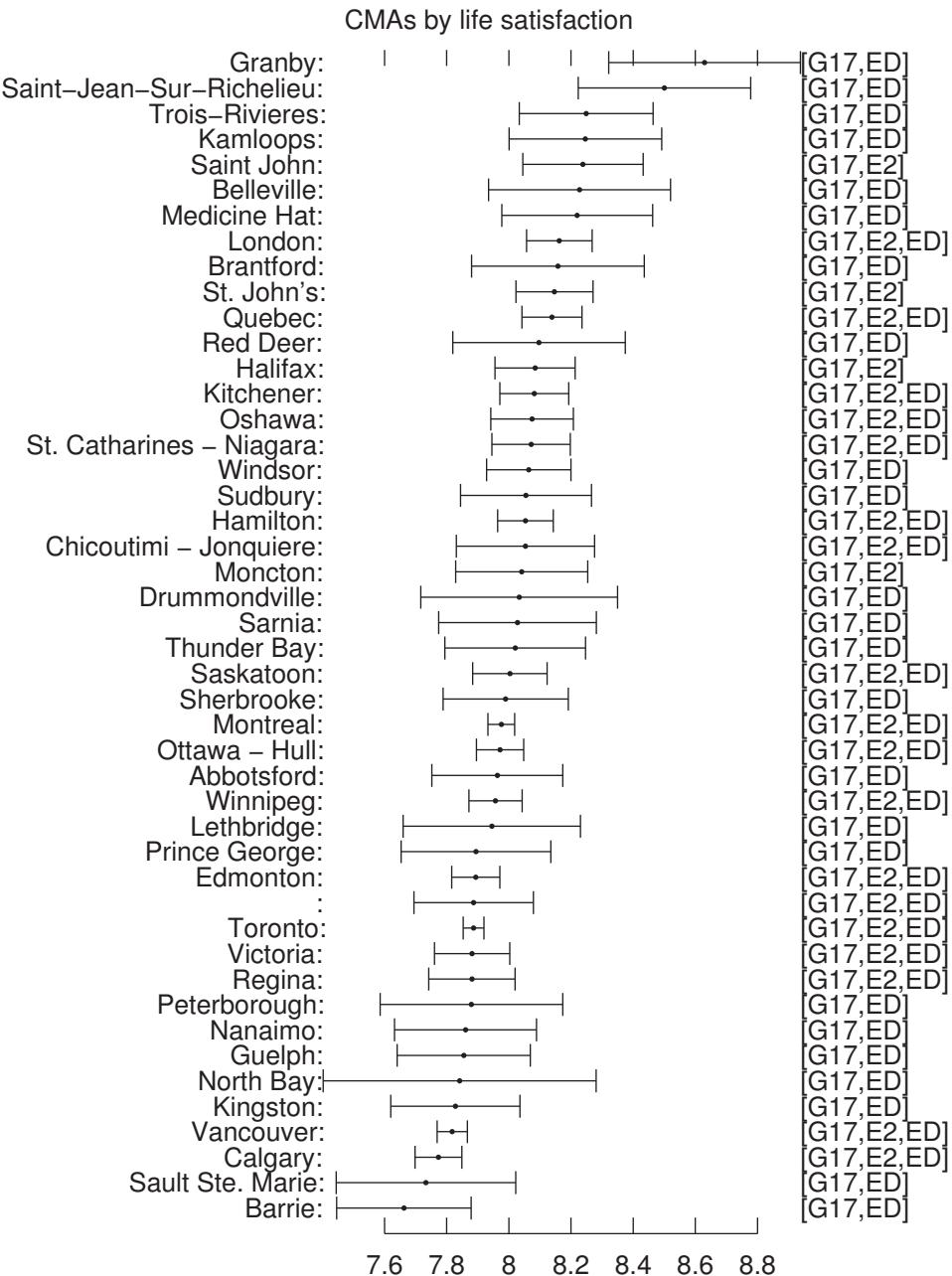


Figure 26: Life satisfaction means by CMA, corrected for survey averages.

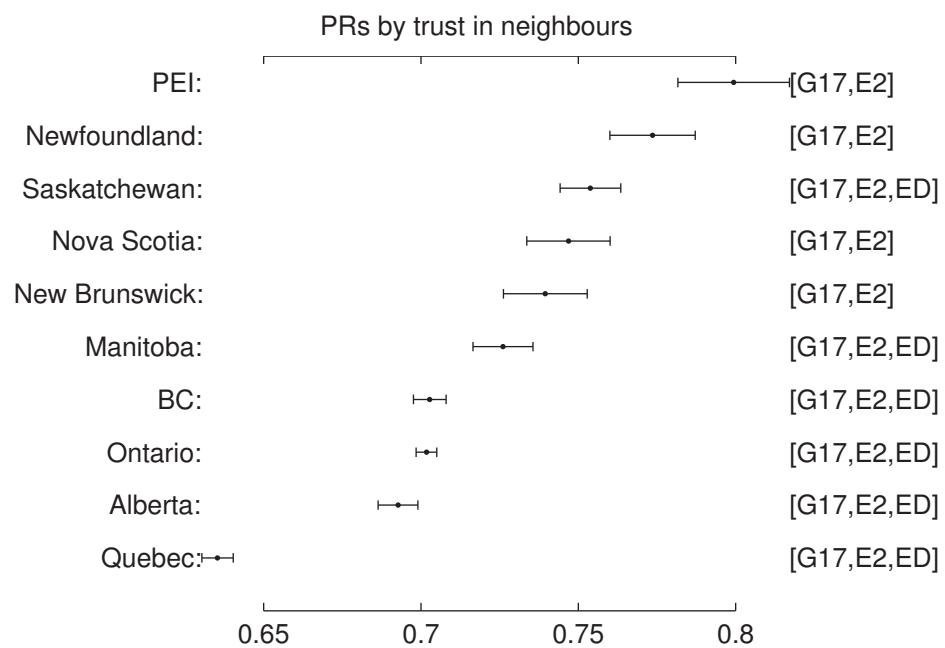


Figure 27: Trust in neighbours by province.

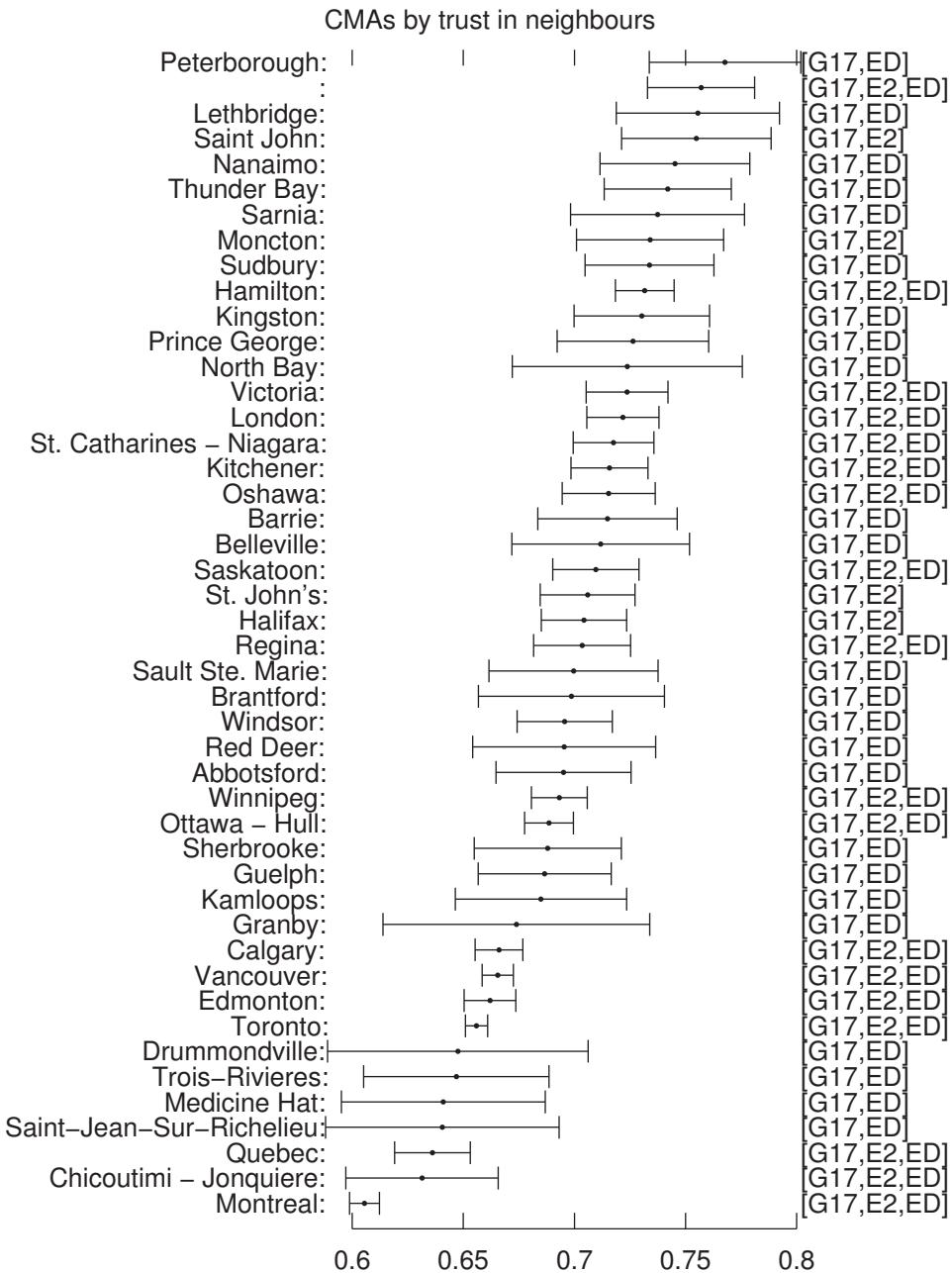


Figure 28: Trust in neighbours by CMA.

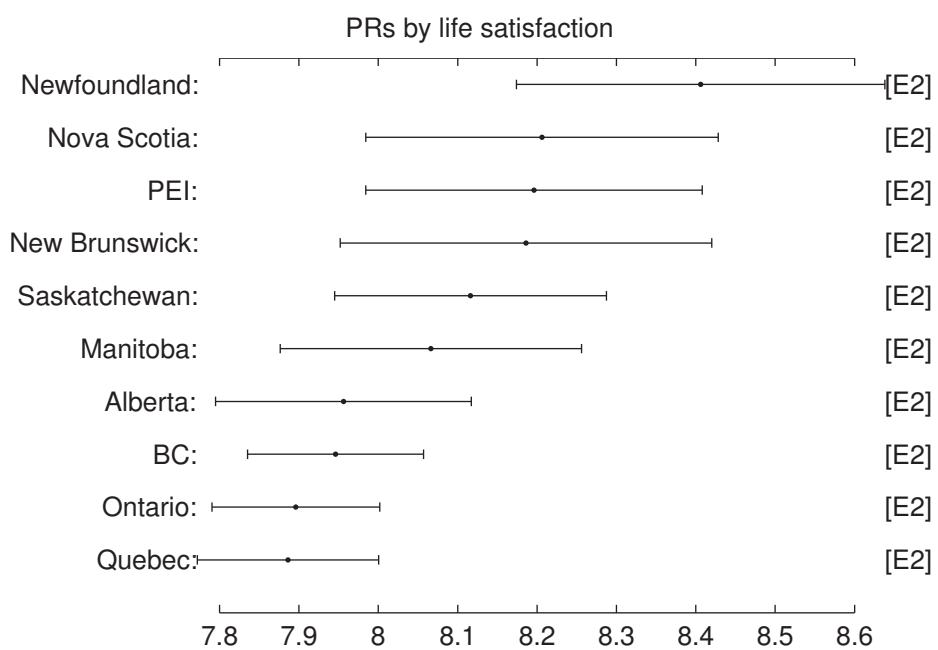


Figure 29: Life satisfaction from ESC2 by province.

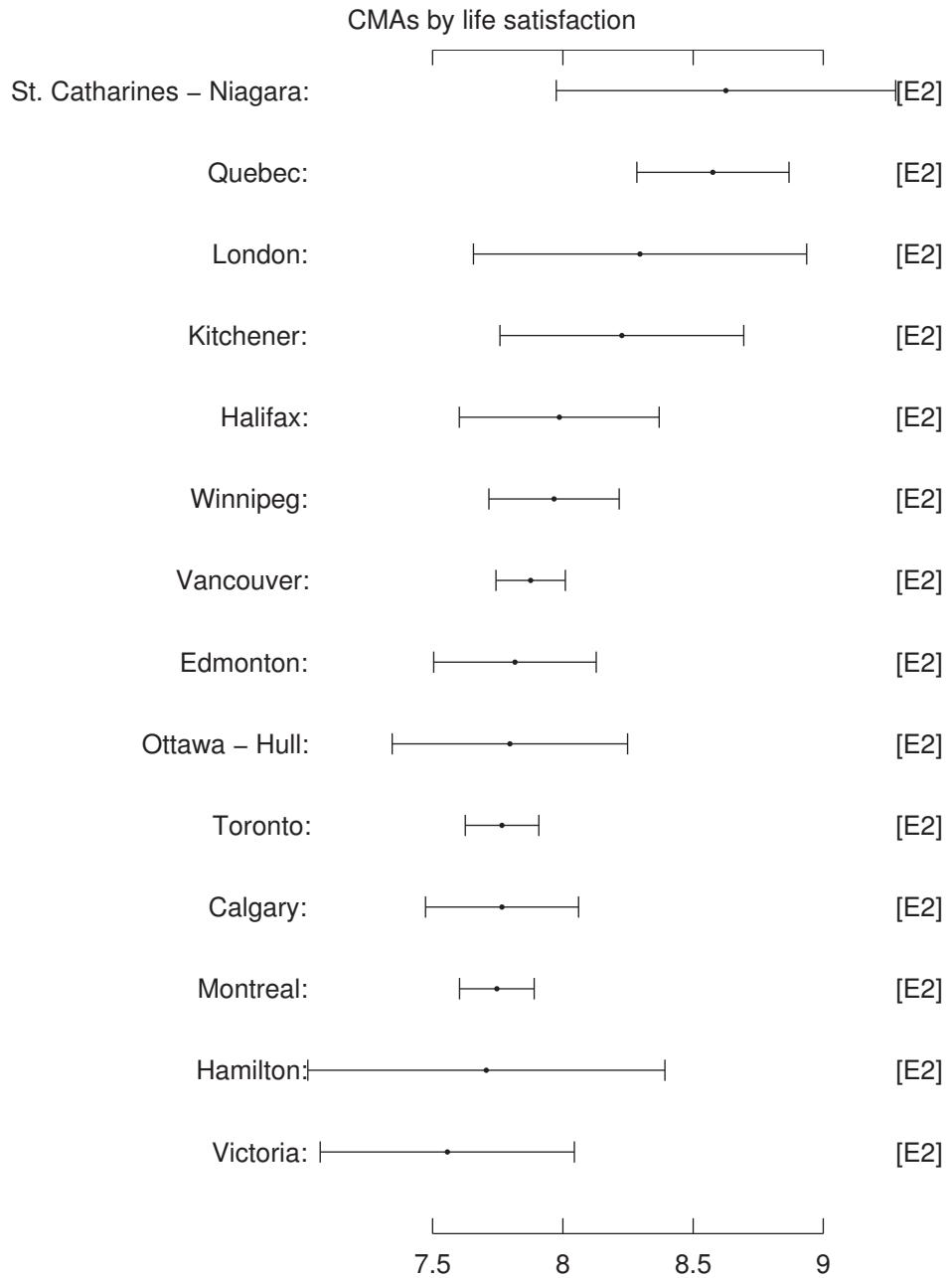


Figure 30: **Life satisfaction from ESC2 by CMA.**