

Hey! Cities! Leave Them Kids Alone!

(Adolescents Are Less Happy in Cities)

Monday 11th December, 2023 20:55

strong effects! on the whole, 0.5 on 1-10 scale, and for some countries close to 1!

We know that adults tend to be less happy in cities across the world (except in the poorest nations such as Sub-Saharan Africa) (Okulicz-Kozaryn and Valente 2021). But we do not know about the children.

1 theory and mechanisms of urban unhappiness

Genes determine about half of SWB (Schnittker 2008, Lykken and Tellegen 1996, Brooks 2013). Humans have not evolved for city life among thousands of people densely packed together in an artificial setting, i.e., in a city. For over 95% of human evolutionary history there were no cities—hunters-gatherers lived in bands of 50-80 (Maryanski and Turner 1992).

Ingroup preference or homophily (“love of the same”) theory states that a human has a preference for other humans like her (McPherson et al. 2001, Tajfel 1982, Tajfel et al. 1971, Smelser and Alexander 1999, Putnam 2007, Fowler and Christakis 2008). A defining feature of a city is heterogeneity or diversity (Wirth 1938), which accordingly produces: mistrust, uneasiness, conflict, and misanthropy (Milgram 1970, Thrift 2005, Amin 2006).¹

Livability theory (Veenhoven and Ehrhardt 1995, Veenhoven 2014, 2000) states that humans, just as other animals, have needs (such as those on Maslow hierarchy of needs (Maslow [1954] 1987)), and if those needs are satisfied, then conditions are livable and happiness follows. As opposed to evolution and homophily predicting urban unhappiness, it is unclear what livability theory predicts regarding urbanism. Some aspects of urbanism may improve livability, and hence, happiness. Cities have multiple benefits (Meyer 2013, Florida 2008, Glaeser 2011, O’Sullivan 2009), notably jobs and amenities that improve livability and happiness. But cities also do have multiple disamenities such as more congestion, crime, infectious disease spread, air, noise, and light pollutions (Bettencourt and West 2010, Bettencourt et al. 2007, Meyer 2013, Okulicz-Kozaryn 2015).² And those disamenities may especially affect adolescents. Urban crime (and bullying) is perhaps more of a problem for adolescents (especially females) than for adults who may be better able to insulate themselves from it³ and cope with it. Clearly, by definition, adults have better coping mechanisms than more fragile adolescents.

It has been theorized already a century ago that urbanism has a negative effect on human brains / neural processing (Simmel 1903), and it has been recently confirmed by neuroscience including that even growing up in a city has lasting negative effects later in life (Lederbogen et al. 2011). Again adolescents are more at risk than adults.

¹Yet, on the other hand, in a city there can be community, a neighborhood village, that at least in some ways can simulate a more natural habitat for a human (Fischer 1995, 1975, Jacobs [1961] 1993).

²Measuring it with happiness yardstick, city disadvantages outweigh city advantages—cities are less happy (at least in the developed world) (Okulicz-Kozaryn and Valente 2021).

³An adult would spend much time at work, home, or in a car, which are relatively crime free. An adolescent is arguably less able to insulate herself from neighborhood and peers, which are often infested with crime in large cities. It needs to be remembered that crime is a city feature—all large cities have large crime problem—crime does increase extremely consistently with city size Bliss (2014), Bettencourt (2013), Bettencourt et al. (2010), Bettencourt and West (2010), Bettencourt et al. (2007).

Multiple Discrepancies Theory (MDT) (Michalos 1985, 2014) states that happiness is relative and a result of multiple comparisons. Arguably, visual and social comparisons are more likely in urban areas as there are more people and more stimuli. And there is some evidence that humans tend to make upwards comparisons (Frey and Stutzer 2002) thus ending up relatively deprived (e.g., Luttmer 2005, Frank 2012).

Adolescents, like adults, are likely to want to keep up with Joneses, but in slightly different ways, e.g., clothing, jewelry, parties, cars—see some examples in Frank (2012).

Finally a big, maybe the biggest, happiness killer of the youth is social media Twenge (2017, 2014).

2 Happiness in Kids

TODO: write sth about happiness in kids; btw looks like they used normal happiness question; not smileys

3 Data

We use 2018 pisa from <https://www.oecd.org/pisa/data/2018database/>. Age is 15 to 16.3, so not kids kids but more like little adolescents.

Urbanicity is recorded in School questionnaire administered to school principals:

Which of the following definitions best describes the community in which your school is located?

- A village, hamlet or rural area (fewer than 3 000 people)
- A small town (3 000 to about 15 000 people)
- A town (15 000 to about 100 000 people)
- A city (100 000 to about 1 000 000 people)
- A large city (with over 1 000 000 people)

A nice feature of PISA data is that there are large cities, 1m, in wvs for instance the top bin is only 500k. And it is missing for only 6 percent of observations.

a limitation is that we do not see a good health variable—existing ones are missing for vast majority. Health is of course a key happiness predictor, but arguably less important for kids as they are healthier than adults.

PISA 2018 defines meaning in life as the extent to which 15-year-olds comprehend, make sense of, or find significance in their lives (Schleicher 2019). PISA 2018 asked students whether they agree or disagree ("strongly disagree", "disagree", "agree", "strongly agree") with the following statements: "My life has clear meaning or purpose"; "I have discovered a satisfactory meaning in life"; and "I have a clear sense of what gives meaning to my life". These statements were combined to create the index of meaning in life

We control for internet use, and we do have specific measures how used, eg we measure social media use. We also measure out of school usage and useage "for fun"—see table 1 for all variables definitions.

Table 1: Variable definitions.

name	description
life satisfaction	"Overall, how satisfied are you with your life as a whole these days?" [0,10]
eudamonia	"Eudaemonia: meaning in life (WLE)" "PISA 2018 asked students (ST185) to report the extent to which they agree ("strongly agree", "agree", "disagree", "strongly disagree") with the following statements: "My life has clear meaning or purpose"; "I have discovered a satisfactory meaning in life"; and "I have a clear sense of what gives meaning to my life". These statements were combined to form the index of meaning in life (EUDMO). Positive values in the index indicate greater meaning in life than the average student across OECD countries." https://www.oecd-ilibrary.org/sites/0a428b07-en/index.html?itemId=/content/component/0a428b07-en [-2.1,1.7]
rural-urban	"Which of the following definitions best describes the community in which your school is located?" [1 (A village, hamlet or rural area (fewer than 3 000 people)), 5 (A large city (with over 1 000 000 people))]
Family wealth (WLE)	"The index of family wealth (WEALTH) is based on the students' responses on whether they had the following at home: a room of their own, a link to the Internet, a dishwasher (treated as a country-specific item), a DVD player, and three other country-specific items (some items in ST20); and their responses on the number of cellular phones, televisions, computers, cars and the rooms with a bath or shower (ST21). " NCES 2011-025 U.S. DEPARTMENT OF EDUCATION Technical Report and User's Guide for the Program for International Student Assessment (PISA) 2009 Data Files and Database with U.S. Specific Variables: https://nces.ed.gov/surveys/pisa/pdf/2011025.pdf [-7.5,4.7]
father's education	"What is the <highest level of schooling> completed by your father?"
weekday Internet use	"During a typical weekday, for how long do you use the Internet outside of school" [1 (0), 7 (>6 hrs a day)]
weekend Internet use	"During a typical weekend day, for how long do you use the Internet outside of school" [1 (0), 7 (>6 hrs a day)]
social networks use	"How often do you use digital devices for the following activities outside of school?" "Participating in social networks (e.g. <Facebook>, <MySpace>)." [1 (never/hardly ever), 5 (every day)]
use internet for fun	"How often do you use digital devices for the following activities outside of school?" "Browsing the Internet for fun (such as watching videos, e.g. <YouTube>)" [1 (never/hardly ever), 5 (every day)]

4 Results

The differences are large—about .5 on 0-10 SWB scale. It needs to be remembered that ecological variables have small effects on SWB as expected—most SWB is explained by genes (Schnittker 2008) and person level predictors (Veenhoven 2014)). And in a1-a3⁴ there is a big difference between the largest cities (gt1m) and everything else just as for adults (Okulicz-Kozaryn 2016). But interestingly, not necessarily like adults, there is also a large gap between lt3k and 3-15k, again especially in models a1-a3, perhaps in the open country there are best outdoor play opportunities for the kids.

As in adults (Okulicz-Kozaryn and Valente 2021), addition of income/wealth makes results stronger—income/wealth confounds with urbanicity.

In full model a4 results are strong, beta (fully standardized; not shown) for gt1m is 65 percent of wealth.

Finally we split by gender in a4m and a4f—interestingly city penalty higher for female; arguably because fem more affected by urban crime

And finally finally add the 4 internet use variables in a5 (we postpone it to the last model as the internet variables cut the sample

⁴Not in a4 controlling for country dummies.

size by about 200k), results are similar⁵

Table 2: OLS regressions of life satisfaction.

	a1	a2	a3	a4	a4f	a4m	a5
3-15k	-0.34***	-0.38***	-0.37***	-0.19***	-0.21***	-0.16***	-0.18***
15-100k	-0.37***	-0.41***	-0.41***	-0.25***	-0.30***	-0.20***	-0.22***
100k-1m	-0.44***	-0.47***	-0.49***	-0.40***	-0.45***	-0.34***	-0.36***
gt1m	-0.61***	-0.65***	-0.67***	-0.46***	-0.53***	-0.37***	-0.41***
Family wealth (WLE)		0.07***	0.05***	0.21***	0.20***	0.21***	0.25***
female			-0.40***	-0.39***	0.00	0.00	-0.50***
father's education			-0.03***	-0.02***	-0.02***	-0.02**	-0.02***
constant	7.63***	7.70***	7.97***	9.34***	9.15***	9.14***	10.08***
4 internet use vars	no	no	no	no	no	no	yes
country dummies	no	no	no	yes	yes	yes	yes
N	471551	470216	452931	452931	228834	224097	250497
*p<0.05 **p<0.01 ***p<0.001							

⁵Actually internet use has very low correlation with urbanicity—see online appendix for details. It probably has been the case that internet was more of an urban phenomenon, but in an era of smartphones—they are ubiquitous through degrees of urbanity and development levels.

	lt3k	3-15k	15-100k	100k-1m	gt1m	N
ALB	0.0	-0.0	-0.2*	-0.3*	-0.2	5916
ARE	0.0	-0.4*	-0.7*	-0.8*	-1.2*	16145
ARG	0.0	-0.1	-0.2	-0.3*	-0.2	9409
AUT	0.0	-0.1	0.0	-0.0	-0.4*	6090
BGR	0.0	-0.4	-0.4	-0.7*	-0.7*	4215
BIH	0.0	-0.0	-0.1	-0.3+		5901
BLR	0.0	-0.2*	-0.0	-0.4*	-0.7*	5404
BRA	0.0	-0.0	-0.2	-0.5*	-0.4+	7851
BRN	0.0	-0.1	-0.1	-0.2+		6360
CHE	0.0	-0.1	-0.1	-0.1		5114
CHL	0.0	0.8*	0.3	0.2	0.2	6009
COL	0.0	0.2	-0.1	-0.3*	-0.5*	6460
CRI	0.0	-0.2+	-0.2*	-0.5*	-0.9*	6049
CZE	0.0	0.0	0.1	-0.0	-0.5*	6198
DEU	0.0	-0.0	0.0	-0.0	0.2	3322
DOM	0.0	0.1	0.1	-0.2	-0.2	3528
ESP	0.0	-0.3*	-0.3*	-0.5*	-0.3*	31904
EST	0.0	-0.2+	0.0	-0.1		4942
FIN	0.0	-0.1	-0.0	0.1		5203
FRA	0.0	-0.0	0.1	-0.0	0.4	5007
GBR	0.0	-0.1	-0.1	-0.2	0.1	9546
GEO	0.0	0.1	-0.1	-0.3*	-0.4*	4784
GRC	0.0	-0.1	-0.4*	-0.3*	-0.4*	5948
HKG	0.0	0.4	0.4	0.1	0.2	4078
HRV	0.0	0.6	0.7+	0.5	0.3	6289
HUN	0.0	-0.3	-0.5	-0.5	-0.6*	4801
IDN	0.0	-0.1	-0.2+	-0.3*	0.2+	9950
IRL	0.0	-0.3*	-0.3*	-0.1	-0.4*	5182
ISL	0.0	-0.0	0.0	-0.1		2915
ITA	0.0	-0.1	-0.3*	-0.3*	-0.5*	10478
JOR	0.0	-0.3*	-0.5*	-0.6*	-0.4*	8090
JPN	0.0	0.0	0.2	0.1	0.1	5669
KAZ	0.0	-0.2*	-0.4*	-0.9*	-0.7*	17919
KOR	0.0	-0.9*	-0.4	-0.6*	-0.6*	6450
KSV	0.0	-0.4*	-0.4*	-0.7*		4468
LBN	0.0	0.5*	0.4*	0.5*	1.0*	3999
LTU	0.0	-0.3*	-0.1	-0.4*		6084
LUX	0.0	0.0	-0.2+	-0.2*		4465
LVA	0.0	0.1	0.1	-0.0		4675
MAC	0.0			0.1		3707
MAR	0.0	-0.2	-0.5*	-0.4*	-0.6*	4846
MDA	0.0	-0.1	-0.1	-0.4*	-0.6*	4892
MEX	0.0	-0.1	-0.2+	-0.2+	-0.3*	5811
MKD	0.0	-0.5*	-0.7*	-0.7*	-0.8*	4391
MLT	0.0	0.1	-0.1			3030
MNE	0.0	-1.3*	-1.3*	-1.4*		6138
MYS	0.0	-0.0	-0.1	-0.5*	-0.5*	5853
NLD	0.0	-0.2	-0.1	-0.2		3514
PAN	0.0	0.3+	0.1	-0.2	-0.5*	3505
PER	0.0	-0.2+	-0.1	-0.3*	-0.5*	4855
PHL	0.0	0.3*	0.1	-0.1	-0.0	6142
POL	0.0	-0.2+	-0.2*	-0.2+	0.0	5274
PRT	0.0	-0.6*	-0.6*	-0.6*	-0.6*	5265
QAT	0.0	0.0	-0.1	-0.1	-0.3+	11765
QAZ	0.0	0.5	0.6	0.2	0.6	3664
QCI	0.0	-0.2	-0.1	-0.2+	-0.1	11923
QMR	0.0	-0.7*	-0.6*	-0.7*	0.1	1885
QRT	0.0	-0.4*	-1.0*	-1.0*	-1.0*	5293
ROU	0.0	0.3	0.2	0.1	0.1	4817
RUS	0.0	-0.5*	-0.7*	-0.7*	-1.0*	6587
SAU	0.0	-0.5*	-0.4*	-0.7*	-0.8*	5452
SRB	0.0	0.3	0.6	0.4	0.2	5832
SVK	0.0	0.0	-0.1	-0.4*		5162
SVN	0.0	-0.3	-0.2	-0.2		5473
TAP	0.0	-0.1	-0.1	-0.1	-0.2	6887
THA	0.0	-0.1+	-0.3*	-0.4*	-0.6*	8279
TUR	0.0	1.2*	0.7*	0.5	0.4	6598
UKR	0.0	-0.3*	-0.5*	-0.6*	-0.9*	5632
URY	0.0	-0.1	-0.2	-0.2	-0.5*	4330
USA	0.0	-0.0	-0.2	-0.5*	-0.2	4121
VNM	0.0	-0.0	-0.2+	-0.3*	-0.6*	5191

* p<0.05,
+ p<0.1;
robust std
err

Table 3: OLS regressions of life satisfaction on place size for each country separately including covariates from a4 (not shown). Only LBN and HUN marginally happier in cities lt1m

4.1 Eudamonia

in table 4 different from lifests, biggest hit from lt3k to 3-15k in b1-b3, and in b4 controlling for country dummies rather smooth gradient. females about 2x less eudamonia than males in urban v rural

And like with life satisfaction controlling for internet use does not change lt1m coefficient significantly

Table 4: OLS regressions of Eudamonia.

	b1	b2	b3	b4	b4f	b4m	b5
3-15k	-0.09***	-0.08***	-0.08***	-0.05***	-0.06***	-0.03***	-0.04***
15-100k	-0.13***	-0.12***	-0.12***	-0.06***	-0.09***	-0.03***	-0.05***
100k-1m	-0.14***	-0.13***	-0.13***	-0.10***	-0.14***	-0.07***	-0.10***
gt1m	-0.15***	-0.13***	-0.13***	-0.13***	-0.17***	-0.08***	-0.11***
Family wealth (WLE)		-0.02***	-0.02***	0.06***	0.05***	0.06***	0.07***
female			-0.07***	-0.07***	0.00	0.00	-0.12***
father's education			0.01***	0.01***	0.01***	0.00	0.01***
constant	0.27***	0.24***	0.27***	0.74***	0.71***	0.69***	0.97***
4 internet use vars	no	no	no	no	no	no	yes
country dummies	no	no	no	yes	yes	yes	yes
N	483,844	482,944	465,568	465,568	236,002	229,566	264,857
*p<0.05 **p<0.01 ***p<0.001							

in atble 5 urban eudamia penalty is less clear than life satisfaction—while most countries do have urban penalty, there is a handful with urban eudamonic premium

	lt3k	3-15k	15-100k	100k-1m	gt1m	N
ALB	0.0	-0.0	-0.1	-0.1*	-0.1*	5940
ARE	0.0	-0.1*	-0.3*	-0.3*	-0.5*	16256
ARG	0.0	0.0	0.0	0.0	0.0	9071
AUS	0.0	-0.1	-0.0	-0.1	-0.0	10845
AUT	0.0	0.1+	0.1+	-0.0	-0.0	5946
BEL	0.0	0.0	0.0	-0.1	0.2*	4134
BGR	0.0	-0.0	0.1	-0.0	-0.1	4065
BIH	0.0	-0.0	0.0	-0.0		5836
BLR	0.0	-0.0	-0.0	-0.1*	-0.2*	5347
BRA	0.0	0.2*	0.1+	0.1	0.1+	7662
BRN	0.0	-0.1*	-0.1*	-0.1*		6195
CHE	0.0	0.0	-0.1+	-0.1		4867
CHL	0.0	0.1	-0.0	-0.1	-0.2+	5741
COL	0.0	0.0	0.0	0.0	-0.1+	6469
CRI	0.0	-0.0	-0.1+	-0.1*	-0.3*	6039
CZE	0.0	-0.1	-0.1+	-0.2*	-0.2*	6066
DEU	0.0	-0.1	-0.1	-0.1	-0.0	3127
DNK	0.0	0.1*	0.2*	0.2*	0.2*	5026
DOM	0.0	-0.1	0.0	-0.0	-0.1	3016
ESP	0.0	-0.0	-0.0	-0.1*	-0.0	30916
EST	0.0	0.0	0.1*	0.0		4923
FIN	0.0	0.0	0.0	0.1		5103
FRA	0.0	-0.1	-0.2*	-0.2*	-0.3*	4871
GBR	0.0	-0.0	-0.0	-0.1	0.2*	9358
GEO	0.0	-0.0	0.1+	-0.1	-0.1*	4524
GRC	0.0	0.0	-0.1	-0.1*	-0.1+	5911
HKG	0.0	-0.2	-0.2	-0.2*	-0.2*	4087
HRV	0.0	0.0	0.1	-0.1	-0.1	6179
HUN	0.0	0.0	-0.1	-0.1	-0.2*	4761
IDN	0.0	0.0	0.0	-0.0	0.1*	10289
IRL	0.0	-0.1*	-0.1*	-0.0	-0.1*	5090
ISL	0.0	-0.1+	0.0	-0.1		2854
ITA	0.0	-0.2*	-0.2*	-0.2*	-0.2*	10203
JOR	0.0	-0.1	-0.1	-0.1+	-0.1*	8095
JPN	0.0	0.0	-0.1	-0.1	-0.1	5636
KAZ	0.0	-0.1*	-0.2*	-0.2*	-0.2*	17553
KOR	0.0	-0.5*	-0.4*	-0.4*	-0.3*	6444
KSV	0.0	-0.0	-0.0	-0.1+		4349
LBN	0.0	0.1+	0.1+	0.1	0.1+	4069
LTU	0.0	-0.1*	-0.1*	-0.2*		5986
LUX	0.0	0.0	0.0	-0.1+		4348
LVA	0.0	-0.1+	-0.1*	-0.1*		4590
MAC	0.0			0.3		3718
MAR	0.0	-0.0	0.0	0.0	-0.0	4489
MDA	0.0	-0.1+	-0.2*	-0.2*	-0.3*	4886
MEX	0.0	0.1*	0.1	0.1*	0.1	5525
MKD	0.0	0.1	0.1	0.1	0.2	4399
MLT	0.0	0.1	0.0			2978
MNE	0.0	0.7	0.7	0.6		6025
MYS	0.0	-0.0	0.1+	-0.1*	-0.2*	5952
NLD	0.0	0.1	0.1	0.2		3480
PAN	0.0	0.2*	0.2*	0.1	-0.0	3052
PER	0.0	-0.1	-0.0	-0.1	-0.1	4484
PHL	0.0	-0.1	-0.0	-0.0	-0.0	6788
POL	0.0	-0.1	-0.1*	-0.1*	-0.0	5282
PRT	0.0	-0.0	-0.0	-0.1	-0.2	5200
QAT	0.0	0.0	-0.1*	-0.1*	-0.2*	11656
QAZ	0.0	-0.4+	-0.3	-0.5*	-0.3+	3516
QCI	0.0	-0.1+	-0.1+	-0.1*	-0.1*	11938
QMR	0.0	-0.1	-0.1	-0.1	0.4*	1827
QRT	0.0	-0.2*	-0.2*	-0.3*	-0.3*	5206
ROU	0.0	-0.1	-0.1*	-0.2*	-0.1+	4771
RUS	0.0	-0.2*	-0.3*	-0.2*	-0.3*	6410
SAU	0.0	-0.1	0.0	0.0	0.0	5268
SRB	0.0	-0.2*	-0.1*	-0.1*	-0.2*	5632
SVK	0.0	-0.1+	-0.1*	-0.3*		5066
SVN	0.0	-0.0	-0.0	-0.0		5432
TAP	0.0	0.0	0.0	-0.1	-0.1	6959
THA	0.0	-0.0	-0.1*	-0.1*	-0.1*	8389
TUR	0.0	0.2	0.1	0.1	0.1	6706
UKR	0.0	-0.1*	-0.2*	-0.2*	-0.3*	5546
URY	0.0	0.0	0.0	0.2+	-0.0	3899
USA	0.0	0.1	-0.0	-0.1	0.0	4086
VNM	0.0	0.0	-0.1	-0.1*	-0.1*	5216

* p<0.05,
+ p<0.1;
robust std
err

Table 5: OLS regressions of Eudamonia on place size for each country separately including covariates from b4 (not shown). Most countries eudamoinc urban penalty, but a handful of countries have premium

5 Conclusion and discussion

Future research: Arguably after the pandemic cities became even more unhappy just as adults did ??blind for peer-review

TODO: have separate som-r.tex as opposed to having it below; and in paper say see supplementary material as opposed to see

ONLINE APPENDIX

[note: this section will NOT be a part of the final version of the manuscript, but will be available online instead]

	lt3k	3-15k	15-100k	100k-1m	gt1m	N
ALB	0.0	-0.0	-0.2*	-0.2*	-0.1	6002
ARE	0.0	-0.4*	-0.7*	-0.8*	-1.1*	16355
ARG	0.0	0.0	-0.1	-0.2	-0.1	10442
AUT	0.0	-0.1	0.0	-0.0	-0.5*	6466
BGR	0.0	-0.1	0.0	-0.2	-0.3	4403
BIH	0.0	-0.0	-0.1	-0.2		5982
BLR	0.0	-0.1	0.1	-0.3*	-0.6*	5712
BRA	0.0	-0.1	-0.2	-0.5*	-0.4*	8385
BRN	0.0	-0.1	-0.0	-0.2		6528
CHE	0.0	-0.2+	-0.2	-0.3+		5441
CHL	0.0	0.5*	0.3	0.2	0.3	6442
COL	0.0	0.2	-0.1	-0.3*	-0.6*	6633
CRI	0.0	-0.2*	-0.1+	-0.4*	-0.9*	6420
CZE	0.0	-0.0	-0.1	-0.1	-0.4*	6487
DEU	0.0	0.0	0.0	-0.0	0.1	3839
DOM	0.0	0.1	0.1	-0.1	-0.2	3694
ESP	0.0	-0.3*	-0.3*	-0.4*	-0.4*	33374
EST	0.0	-0.2+	-0.0	-0.0		5129
FIN	0.0	-0.1	0.0	0.1		5384
FRA	0.0	0.1	0.2	0.1	0.4+	5312
GBR	0.0	-0.1	-0.2	-0.2*	-0.2	11090
GEO	0.0	0.2+	0.1	-0.1	-0.2	4929
GRC	0.0	-0.0	-0.3*	-0.3*	-0.3*	5995
HKG	0.0	0.3	0.3	0.1	0.1	4205
HRV	0.0	0.7	0.8+	0.5	0.4	6376
HUN	0.0	-0.2	-0.4	-0.4	-0.4	4926
IDN	0.0	-0.1	-0.1	-0.2*	0.3*	10131
IRL	0.0	-0.3*	-0.3*	-0.1	-0.5*	5422
ISL	0.0	0.0	0.1	-0.0		3011
ITA	0.0	-0.1	-0.3*	-0.4*	-0.6*	10745
JOR	0.0	-0.1	-0.2	-0.2	0.0	8395
JPN	0.0	0.0	0.3+	0.2	0.2	6030
KAZ	0.0	-0.2*	-0.5*	-0.9*	-1.1*	18736
KOR	0.0	-0.9*	-0.3	-0.6*	-0.5+	6511
KSV	0.0	-0.3*	-0.3*	-0.6*		4522
LBN	0.0	0.6*	0.6*	0.6*	1.5*	4390
LTU	0.0	-0.2*	-0.1	-0.4*		6568
LUX	0.0	0.0	-0.1	-0.0		5010
LVA	0.0	0.1	0.2	0.1		4928
MAC	0.0			0.3		3746
MAR	0.0	-0.2	-0.4*	-0.3*	-0.4*	5116
MDA	0.0	0.1	0.1	-0.0	0.1	5232
MEX	0.0	-0.0	-0.1	0.1	-0.0	5961
MKD	0.0	-0.5*	-0.6*	-0.6*	-0.8*	4652
MLT	0.0	0.0	-0.2			3142
MNE	0.0	-1.3*	-1.3*	-1.4*		6253
MYS	0.0	-0.0	-0.0	-0.4*	-0.4*	5880
NLD	0.0	-0.1	-0.1	-0.2		3617
PAN	0.0	0.3+	0.1	-0.1	-0.5*	3775
PER	0.0	-0.2*	-0.2*	-0.3*	-0.6*	4926
PHL	0.0	0.5*	0.2+	0.1	0.2	6299
POL	0.0	-0.2+	-0.2*	-0.2	-0.0	5463
PRT	0.0	-0.6*	-0.6*	-0.6*	-0.6*	5477
QAT	0.0	0.0	-0.0	-0.1	-0.1	12127
QAZ	0.0	0.6	0.8	0.4	0.9	3719
QCI	0.0	-0.2	-0.1	-0.2	-0.0	11943
QMR	0.0	-0.8*	-0.6*	-0.7*	0.0	1942
QRT	0.0	-0.3*	-0.9*	-0.9*	-0.9*	5525
ROU	0.0	0.4*	0.4*	0.4*	0.4+	4948
RUS	0.0	-0.5*	-0.6*	-0.6*	-0.8*	6866
SAU	0.0	-0.5*	-0.4*	-0.7*	-0.8*	5794
SRB	0.0	0.4	0.7	0.6	0.4	5918
SVK	0.0	0.1	-0.1	-0.3*		5275
SVN	0.0	-0.3	-0.2	-0.2		5550
TAP	0.0	-0.1	-0.1	-0.1	-0.3	6962
THA	0.0	-0.1+	-0.3*	-0.4*	-0.6*	8357
TUR	0.0	1.1*	0.7*	0.5+	0.6+	6643
UKR	0.0	-0.2+	-0.3*	-0.4*	-0.6*	5898
URY	0.0	0.0	-0.1	-0.0	-0.2	4652
USA	0.0	0.0	-0.1	-0.4*	-0.2	4252
VNM	0.0	0.0	-0.2	-0.2*	-0.6*	5291

* p<0.05,
+ p<0.1;
robust std
err

Table 6: OLS regressions of SWB on place size only (bivariate; a1) for each country separately. barely anything like france and 2 more

6 internet use

Urbanicity has very low positive correlation with internet use

```
. d city int*
Variable name      Storage type      Display format      Value label      Variable label
-----
city               byte          %9.0g              city             RECODE of SC001Q01TA (Which of
                                     the following definitions best
                                     describes the comm
intWday            byte          %2.0f              labels341        During a typical weekday, for how
                                     long do you use the Internet
                                     outside of school
intWend            byte          %2.0f              labels342        On a typical weekend day, for how
                                     long do you use the Internet
                                     outside of school
intSN              byte          %2.0f              labels374        Use digital devices outside of
                                     school: Participating in Social
                                     Networks (e.g. <F
intFun             byte          %2.0f              labels376        Use digital devices outside of
                                     school: Browsing the Internet
                                     for fun (such as wa
```

```
. pwcorr city int*
          |      city      intWday      intWend      intSN      intFun
-----
city      |      1.0000
intWday   |      0.0488      1.0000
intWend   |      0.0720      0.7251      1.0000
intSN     |      0.0569      0.2594      0.2792      1.0000
intFun    |      0.0866      0.3066      0.3479      0.5249      1.0000
```

.9

Using some internet is good for an adolescent, but using a lot on the weekend is bad

```
reg ls i.city wealth fem faEd i.intWday i.intWend, robust
Linear regression                                Number of obs   =    266,770
                                                F(19, 266750)   =    340.73
                                                Prob > F         =    0.0000
                                                R-squared        =    0.0238
                                                Root MSE        =    2.5032
```

ls	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]	
city						
3-15k	-.4296694	.0196451	-21.87	0.000	-.4681732	-.3911656
15-100k	-.4853962	.0185923	-26.11	0.000	-.5218366	-.4489557
100k-1m	-.5295389	.0186871	-28.34	0.000	-.5661651	-.4929126
gt1m	-.7087667	.0212434	-33.36	0.000	-.7504032	-.6671301
wealth	.058285	.0053595	10.87	0.000	.0477805	.0687896
fem	-.4855582	.0097124	-49.99	0.000	-.5045942	-.4665223
faEd	-.0238479	.0051004	-4.68	0.000	-.0338445	-.0138513
intWday						
1-30 minu..	.1687749	.0381252	4.43	0.000	.0940505	.2434993
31-60 min..	.1174412	.0369693	3.18	0.001	.0449823	.1899001
Between 1..	.0837295	.0347786	2.41	0.016	.0155643	.1518946
Between 2..	-.0017767	.0345739	-0.05	0.959	-.0695406	.0659872
Between 4..	-.0369376	.0357303	-1.03	0.301	-.1069681	.0330928
More than..	.0083298	.0365747	0.23	0.820	-.0633557	.0800153
intWend						
1-30 minu..	.241415	.046509	5.19	0.000	.1502586	.3325714
31-60 min..	.296678	.0448001	6.62	0.000	.2088711	.384485
Between 1..	.2990314	.042022	7.12	0.000	.2166694	.3813934
Between 2..	.1492	.0414603	3.60	0.000	.0679389	.230461
Between 4..	-.0009641	.0418857	-0.02	0.982	-.083059	.0811307
More than..	-.2383889	.0423359	-5.63	0.000	-.3213662	-.1554117
_cons	7.966607	.0429739	185.38	0.000	7.882379	8.050834

.9

And below another robustness check, using clustered std err on school and school level covariates—results similar

```
. d STRATIO SCHLTYPE CLSIZE EDUSHORT STAFFSHORT STUBEHA TEACHBEHA
Variable name      Storage type      Display format      Value label      Variable label
-----
STRATIO            double         %10.0g              Student-Teacher ratio
SCHLTYPE           byte          %10.0g              School Ownership
CLSIZE             byte          %10.0g              Class Size
EDUSHORT           double         %10.0g              Shortage of educational material
                                     (WLE)
STAFFSHORT         double         %10.0g              Shortage of educational staff
                                     (WLE)
STUBEHA            double         %10.0g              Student behaviour hindering
                                     learning (WLE)
```

```
TEACHBEHA      double %10.0g          Teacher behaviour hindering
                                learning (WLE)

. reg ls i.city wealth i.gender faEd i.Region STRATIO SCHLTYPE CLSIZE EDUSHORT
> STAFFSHORT STUBEHA TEACHBEHA , robust cluster(CNTSCHID)

Linear regression      Number of obs      =      389,098
                        F(131, 15010)      =      129.21
                        Prob > F            =      0.0000
                        R-squared           =      0.0686
                        Root MSE         =      2.488
```

(Std. err. adjusted for 15,011 clusters in CNTSCHID)

ls	Coefficient	Robust std. err.	t	P> t	[95% conf. interval]	
city						
3-15k	-0.19	0.02	-8.07	0.00	-0.24	-0.14
15-100k	-0.26	0.02	-11.18	0.00	-0.31	-0.22
100k-1m	-0.41	0.02	-16.91	0.00	-0.45	-0.36
gt1m	-0.44	0.03	-16.02	0.00	-0.49	-0.38
wealth	0.21	0.01	38.32	0.00	0.20	0.22
gender						
Male	0.40	0.01	42.56	0.00	0.38	0.42
faEd	-0.02	0.00	-5.15	0.00	-0.03	-0.01
Region						
3100	-1.20	0.10	-12.21	0.00	-1.39	-1.00
3200	-1.15	0.09	-12.62	0.00	-1.33	-0.97
3201	-1.29	0.11	-11.66	0.00	-1.50	-1.07
3202	-1.36	0.10	-13.10	0.00	-1.56	-1.16
3203	-1.01	0.10	-9.74	0.00	-1.21	-0.81
3204	-1.02	0.09	-11.63	0.00	-1.19	-0.84
7000	-0.86	0.08	-11.09	0.00	-1.01	-0.71
7601	-1.42	0.18	-8.03	0.00	-1.76	-1.07
7602	-1.10	0.10	-11.18	0.00	-1.29	-0.90
7603	-1.61	0.14	-11.67	0.00	-1.88	-1.34
7604	-1.53	0.08	-18.30	0.00	-1.69	-1.37
7605	-1.66	0.14	-12.04	0.00	-1.93	-1.39
9600	-2.99	0.08	-39.58	0.00	-3.14	-2.84
10000	-1.50	0.08	-19.37	0.00	-1.65	-1.35
11200	-0.54	0.07	-7.80	0.00	-0.68	-0.41
15200	-1.38	0.07	-18.62	0.00	-1.53	-1.23
15800	-2.06	0.07	-30.39	0.00	-2.19	-1.92
17000	-0.71	0.08	-8.52	0.00	-0.87	-0.54
17001	-1.17	0.10	-12.16	0.00	-1.36	-0.98
18800	-0.62	0.07	-8.62	0.00	-0.76	-0.48
19100	-1.00	0.07	-14.13	0.00	-1.13	-0.86
20300	-1.85	0.07	-25.01	0.00	-1.99	-1.70
21400	-0.37	0.08	-4.49	0.00	-0.53	-0.21
23300	-1.60	0.07	-22.14	0.00	-1.74	-1.46
24600	-1.19	0.07	-16.90	0.00	-1.33	-1.05
25000	-1.55	0.07	-21.51	0.00	-1.69	-1.41
26800	-1.02	0.08	-13.19	0.00	-1.17	-0.87
27600	-1.73	0.08	-22.92	0.00	-1.88	-1.59
30000	-1.73	0.07	-24.58	0.00	-1.87	-1.59
34400	-2.20	0.07	-29.65	0.00	-2.34	-2.05
34800	-1.59	0.08	-20.39	0.00	-1.74	-1.44
35200	-1.52	0.08	-19.19	0.00	-1.68	-1.37
36000	-0.93	0.07	-12.73	0.00	-1.08	-0.79
36001	-1.39	0.10	-13.65	0.00	-1.59	-1.19
36002	-0.78	0.12	-6.53	0.00	-1.01	-0.55
38000	-1.78	0.07	-24.34	0.00	-1.92	-1.64
38001	-1.41	0.10	-14.60	0.00	-1.60	-1.22
38002	-1.82	0.09	-20.36	0.00	-2.00	-1.65
38004	-1.77	0.09	-19.89	0.00	-1.94	-1.59
38012	-1.70	0.09	-19.06	0.00	-1.87	-1.52
38300	-0.34	0.08	-4.44	0.00	-0.49	-0.19
39200	-2.37	0.07	-32.02	0.00	-2.52	-2.23
39801	-0.78	0.21	-3.69	0.00	-1.20	-0.37
39802	-0.40	0.19	-2.09	0.04	-0.77	-0.02
39803	-0.16	0.16	-1.03	0.30	-0.47	0.15
39804	0.22	0.15	1.47	0.14	-0.07	0.52
39805	0.13	0.14	0.92	0.36	-0.15	0.41
39806	0.33	0.12	2.64	0.01	0.08	0.57
39807	0.08	0.17	0.49	0.63	-0.24	0.41
39808	0.39	0.19	2.01	0.04	0.01	0.77
39809	-0.17	0.15	-1.12	0.26	-0.46	0.13
39810	-0.23	0.20	-1.17	0.24	-0.62	0.16
39811	0.74	0.17	4.24	0.00	0.40	1.07
39812	0.13	0.19	0.69	0.49	-0.24	0.50
39813	0.28	0.16	1.75	0.08	-0.03	0.59
39814	-0.43	0.13	-3.25	0.00	-0.69	-0.17
39815	-0.52	0.19	-2.70	0.01	-0.90	-0.14
39816	-0.20	0.18	-1.08	0.28	-0.56	0.16
40000	-1.69	0.09	-19.78	0.00	-1.86	-1.53
41000	-2.07	0.08	-27.50	0.00	-2.22	-1.93
42200	-1.75	0.13	-13.57	0.00	-2.00	-1.50
42800	-1.57	0.07	-21.40	0.00	-1.72	-1.43
44000	-1.12	0.07	-16.14	0.00	-1.26	-0.98
44200	-1.73	0.08	-22.77	0.00	-1.88	-1.58
45800	-1.47	0.08	-18.17	0.00	-1.63	-1.31
47000	-2.33	0.09	-25.19	0.00	-2.51	-2.15
48400	-0.34	0.07	-4.75	0.00	-0.48	-0.20
49800	-0.95	0.08	-12.12	0.00	-1.11	-0.80
49900	-0.99	0.09	-11.47	0.00	-1.16	-0.82
50400	-1.39	0.10	-13.88	0.00	-1.59	-1.20
52800	-1.33	0.07	-19.03	0.00	-1.47	-1.19
59100	-0.48	0.09	-5.51	0.00	-0.65	-0.31
60400	-1.14	0.08	-14.80	0.00	-1.29	-0.99
60800	-1.08	0.08	-13.97	0.00	-1.23	-0.93
61600	-2.08	0.07	-28.11	0.00	-2.22	-1.93
62000	-1.58	0.07	-21.88	0.00	-1.72	-1.43
63400	-1.91	0.08	-24.90	0.00	-2.06	-1.76
64200	-0.77	0.07	-10.74	0.00	-0.91	-0.63

64300	-1.39	0.08	-18.36	0.00	-1.54	-1.24
64387	-1.15	0.08	-15.06	0.00	-1.30	-1.00
64388	-1.44	0.10	-14.49	0.00	-1.63	-1.24
68200	-0.78	0.11	-7.21	0.00	-1.00	-0.57
68800	-1.01	0.08	-13.35	0.00	-1.16	-0.86
70300	-1.57	0.07	-21.79	0.00	-1.72	-1.43
70400	-1.01	0.08	-13.09	0.00	-1.17	-0.86
70500	-1.99	0.08	-25.93	0.00	-2.14	-1.84
72401	-1.23	0.10	-12.26	0.00	-1.43	-1.03
72402	-1.46	0.10	-14.45	0.00	-1.66	-1.26
72403	-1.41	0.10	-14.31	0.00	-1.60	-1.22
72404	-1.27	0.09	-13.86	0.00	-1.45	-1.09
72405	-1.58	0.11	-14.86	0.00	-1.79	-1.37
72406	-1.50	0.10	-15.14	0.00	-1.70	-1.31
72407	-1.49	0.09	-17.09	0.00	-1.66	-1.32
72408	-1.58	0.10	-15.62	0.00	-1.78	-1.38
72409	-1.14	0.10	-11.48	0.00	-1.33	-0.94
72410	-1.25	0.10	-13.12	0.00	-1.44	-1.07
72411	-1.66	0.10	-16.93	0.00	-1.85	-1.47
72412	-1.42	0.10	-14.52	0.00	-1.61	-1.23
72413	-1.57	0.08	-19.24	0.00	-1.73	-1.41
72414	-1.44	0.09	-16.61	0.00	-1.61	-1.27
72415	-1.27	0.10	-12.33	0.00	-1.47	-1.06
72416	-1.32	0.09	-15.01	0.00	-1.50	-1.15
72417	-1.48	0.11	-13.87	0.00	-1.69	-1.27
72418	-1.09	0.11	-9.55	0.00	-1.31	-0.86
72419	-1.54	0.14	-10.77	0.00	-1.82	-1.26
75600	-1.47	0.07	-20.08	0.00	-1.61	-1.32
76400	-1.00	0.07	-14.01	0.00	-1.14	-0.86
78400	-1.83	0.07	-25.54	0.00	-1.97	-1.69
79200	-2.80	0.08	-34.35	0.00	-2.96	-2.64
80700	-0.54	0.08	-7.16	0.00	-0.69	-0.39
82611	-2.70	0.09	-30.79	0.00	-2.87	-2.52
82612	-2.36	0.11	-22.21	0.00	-2.56	-2.15
82613	-2.40	0.09	-26.07	0.00	-2.58	-2.22
82620	-2.59	0.09	-30.07	0.00	-2.76	-2.42
84000	-2.10	0.08	-25.67	0.00	-2.26	-1.94
85800	-0.89	0.07	-11.94	0.00	-1.03	-0.74
97500	-1.89	0.07	-27.31	0.00	-2.03	-1.76
STRATIO	0.00	0.00	0.71	0.48	-0.00	0.00
SCHLTYPE	0.06	0.01	5.75	0.00	0.04	0.09
CLSIZE	0.00	0.00	2.39	0.02	0.00	0.00
EDUSHORT	0.01	0.01	2.07	0.04	0.00	0.03
STAFFSHORT	-0.01	0.01	-1.07	0.29	-0.02	0.01
STUBEHA	0.01	0.01	1.15	0.25	-0.01	0.02
TEACHBEHA	-0.02	0.01	-2.34	0.02	-0.03	-0.00
_cons	8.66	0.07	117.75	0.00	8.52	8.81

.9

References

- AMIN, A. (2006): "The good city," *Urban studies*, 43, 1009–1023.
- BETTENCOURT, L. AND G. WEST (2010): "A unified theory of urban living," *Nature*, 467, 912–913.
- BETTENCOURT, L. M. (2013): "The origins of scaling in cities," *science*, 340, 1438–1441.
- BETTENCOURT, L. M., J. LOBO, D. HELBING, C. KÜHNERT, AND G. B. WEST (2007): "Growth, innovation, scaling, and the pace of life in cities," *Proceedings of the National Academy of Sciences*, 104, 7301–7306.
- BETTENCOURT, L. M., J. LOBO, D. STRUMSKY, AND G. B. WEST (2010): "Urban scaling and its deviations: Revealing the structure of wealth, innovation and crime across cities," *PloS one*, 5, e13541.
- BLISS, L. (2014): "Moving Toward an Evolutionary Theory of Cities," .
- BROOKS, A. C. (2013): "Formula for Happiness," *The New York Times*.
- FISCHER, C. S. (1975): "Toward a subcultural theory of urbanism," *American Journal of Sociology*, 80, 1319–1341.
- (1995): "The subcultural theory of urbanism: A twentieth-year assessment," *American Journal of Sociology*, 543–577.
- FLORIDA, R. (2008): *Who's your city?*, Basic Books, New York NY.
- FOWLER, J. H. AND N. A. CHRISTAKIS (2008): "Dynamic Spread of Happiness in a Large Social Network: Longitudinal Analysis Over 20 Years in the Framingham Heart Study," *British Medical Journal*, Vol. 3, January 09.

- FRANK, R. (2012): *The Darwin economy: Liberty, competition, and the common good*, Princeton University Press, Princeton NJ.
- FREY, B. S. AND A. STUTZER (2002): "What Can Economists Learn from Happiness Research?" *Journal of Economic Literature*, 40, 402–435.
- GLAESER, E. (2011): *Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier*, Penguin Press, New York NY.
- JACOBS, J. ([1961] 1993): *The death and life of great American cities*, Random House, New York NY.
- LEDERBOGEN, F., P. KIRSCH, L. HADDAD, F. STREIT, H. TOST, P. SCHUCH, S. WUST, J. C. PRUESSNER, M. RIETSCHEL, M. DEUSCHLE, AND A. MEYER-LINDENBERG (2011): "City living and urban upbringing affect neural social stress processing in humans," *Nature*, 474.
- LUTTMER, E. F. P. (2005): "Neighbors as Negatives: Relative Earnings and Well-Being," *Quarterly Journal of Economics*, 120, 963–02.
- LYKKEN, D. AND A. TELLEGEN (1996): "Happiness is a Stochastic Phenomenon," *Psychological Science*, 7, 186–189.
- MARYANSKI, A. AND J. H. TURNER (1992): *The social cage: Human nature and the evolution of society*, Stanford University Press.
- MASLOW, A. ([1954] 1987): *Motivation and personality*, Longman, 3 ed.
- MCPHERSON, M., L. SMITH-LOVIN, AND J. M. COOK (2001): "Birds of a feather: Homophily in social networks," *Annual Review of Sociology*, 415–444.
- MEYER, W. B. (2013): *The Environmental Advantages of Cities: Countering Commonsense Antiurbanism*, MIT Press, Cambridge MA.
- MICHALOS, A. (1985): "Multiple discrepancies theory (MDT)," *Social Indicators Research*, 16, 347–413.
- MICHALOS, A. C. (2014): "An Interview with Alex C. Michalos," *International journal of wellebeing*, 106–110.
- MILGRAM, S. (1970): "The experience of living in cities," *Science*, 167, 1461–1468.
- OKULICZ-KOZARYN, A. (2015): *Happiness and Place. Why Life is Better Outside of the City.*, Palgrave Macmillan, New York NY.
- (2016): "Unhappy metropolis (when American city is too big)," *Cities*.
- OKULICZ-KOZARYN, A. AND R. R. VALENTE (2021): "Urban unhappiness is common," *Cities*, 103368.
- O'SULLIVAN, A. (2009): *Urban economics*, McGraw-Hill.
- PUTNAM, R. (2007): "E pluribus unum: Diversity and community in the twenty-first century," *Scandinavian Political Studies*, 30, 137–174.
- SCHLEICHER, A. (2019): "PISA 2018: Insights and interpretations." *oecd Publishing*.
- SCHNITTKER, J. (2008): "Happiness and Success: Genes, Families, and the Psychological Effects of Socioeconomic Position and Social Support," *American Journal of Sociology*, 114, S233–S259.
- SIMMEL, G. (1903): "The metropolis and mental life," *The Urban Sociology Reader*, 23–31.

- SMELSER, N. J. AND J. C. ALEXANDER (1999): *Diversity and its discontents: cultural conflict and common ground in contemporary American society*, Princeton University Press, Princeton NJ.
- TAJFEL, H. (1982): "Social psychology of intergroup relations," *Annual review of psychology*, 33, 1–39.
- TAJFEL, H., M. G. BILLIG, R. P. BUNDY, AND C. FLAMENT (1971): "Social categorization and intergroup behaviour," *European journal of social psychology*, 1, 149–178.
- THRIFT, N. (2005): "But malice aforethought: cities and the natural history of hatred," *Transactions of the institute of British Geographers*, 30, 133–150.
- TWENGE, J. (2017): "Have Smartphones Destroyed a Generation? More comfortable online than out partying, post-Millennials are safer, physically, than adolescents have ever been. But they're on the brink of a mental-health crisis." *The Atlantic*.
- TWENGE, J. M. (2014): *Generation Me: Why Today's Young Americans Are More Confident, Assertive, Entitled—and More Miserable Than Ever Before*, Simon and Schuster.
- VEENHOVEN, R. (2000): "The four qualities of life," *Journal of happiness studies*, 1, 1–39.
- (2014): "Livability Theory," *Encyclopedia of Quality of Life and Well-Being Research*, 3645–3647.
- VEENHOVEN, R. AND J. EHRHARDT (1995): "The Cross-National Pattern of Happiness: Test of Predictions Implied in Three Theories of Happiness," *Social Indicators Research*, 34, 33–68.
- WIRTH, L. (1938): "Urbanism as a Way of Life," *American Journal of Sociology*, 44, 1–24.