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Preferring or *Needing* Cities? (Evolutionary) psychology, utility and life satisfaction of urban living

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ABSTRACT

What does city life do to us? We start this discussion introducing the sociologists Tönnies, Durkheim, Simmel, Park, Weber, Wirth, Fisher, Foucault, Gans, Gieryn, Hägerstrand, Stokols, Lowry and Harvey; the philosophers Aristotle, Aristippus, Epicurus, Augustine, Aquinas, Epictetus, Kant, Mandeville, Bentham; the economists, among many, Mill, Stigler, Glaeser, Frey, Easterlin; the psychologists Kahneman, Diener and many others; and evolutionary psychology hints. Empirical evidence suggests a causal link between mental health and urbanicity level. Idem for life satisfaction and stated preferences, both resulting higher at lower urbanicity levels. Despite this, more and more people are deciding to spend their lives in cities (85–90% by 2100). Why? Urban life pros and cons pose individuals *subjective spatial dis-equilibrium* to face life-time and daily-life decisions, rationally/irrationally balancing advantages and disadvantages in short (current utility) and long term (lifetime utility) perspectives. People trade-off antagonistic arguments of their lifetime/current utility functions when deciding where to live, and some of them end up having to sacrifice a preferred environment to enjoy other types of benefits. Future technological advances (robots, artificial intelligence, hologram communication, telework, teleservices, hyperloops …) and urban-territorial design will radically transform our socio-economic systems and free us up to live where we truly prefer, which might either be an electronic cottage in the wild, a picturesque rural settlement, a romantic town, a beautiful city, a sparkling megacity, or a combination of them.

"*Village life is something else*"

Leonardo D'Acci (2020)

1. Introduction: from sociological urban theories to neurourbanism

Tönnies (1887) and Durkheim (1893) introduced the academic debate about the effects that living in cities have on us, soon followed by Simmel (1903), Park (1915), Weber et al. (1921), Wirth (1938), and Fisher (1972, 1973, 1975a).

The Tönnies's shift from *Gemeinschaft*[1] to *Gesellschaft*[2] communities is interpreted by Durkheim from a labour division point of view: from primitive societies with minimal division of labour, if any, to modern complex societies with extreme division of labour creating higher efficiency at the costs of too many interactions which for Simmel lead to a "mental change" and for Weber to a money-oriented, self-seeking society with larger and larger frenetic cities and consequentially lower moral unity and happiness.

In the Wirthian model – based on the sociological foundation of Tönnies and Durkheim, and the socio-psychological of Simmel – impersonality, superficial-transitory relationships, formal organization, unhappiness, isolation, deviance, are grouped under the label of *social malaise*, correlated with city size, density, and heterogeneity.

Fisher poses the following question: are the cities themselves (size, density, heterogeneity) leading to unhappiness, or other associated factors (crime, poverty, absence of support …)?

In this regards, for Michael Foucault – despite "urban space has its own dangers" (Foucault, 1984, p. 243) – the fragmented realm of cities is an opportunity of freedom as the place where experiencing "otherness", a pluriformity heterotopia in which a spatialized otherness can flourish (Sudradjat, 2012).

Also Herbert Gans points to some positive aspects of urban life laying

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[1] Social solidity built on family/kin group of instinctive habitual relations.

[2] Weak family-friendship cohesion, social relations based by contractual commitments among professional peers.

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in the density itself which for someone is a desirable factor (Gans 2002, p. 332) and whose public places and compactness may explain the creativity and cultural effervescence of cities (Gieryn, 2000; Hannerz, 1992).

We can adapt to the strangers' close presence of modern city life but at a psychological cost although high density usually provides a variety of stimulation and learning opportunities (Sommer, 2002, p. 650).

Thomas F. Gieryn (2000, p. 476) epitomises this urban life dichotomy: "Places bring people together in bodily co-presence – but then what (Boden & Molotch, 1994; Sennett, 1994)? Put crudely, the possibilities are two – engagement or estrangement (Sennett, 1990)". The debate about these two pendulum swings was already considerable in the second hal of the 1970s, and reviewed in Fischer, 1975 and Choldin, 1978.

Gieryn (2000, p. 476) reminds us how in one extreme of this pendulum, cities are the locus of freedom, creativity, interactions (Young, 1990), diversity, tolerance, sociation, integration, participation (Fischer, 1977; 1982); in the other extreme are the locus of anonymity, mental illness, loneliness, egoism, detachment, isolation (Halpern, 1995).

Torsten Hägerstrand talks about "the fate of the individual being in an increasingly complicated environment or, if one prefers, questions as to the quality of life" and likes to see people, not locations, as the core of regiodnal sciences (Hägerstrand, 1970).

The search for quality of life seems to be an omnipresent compromise between the positive aspects linked with urban life and those linked with the village-country life. This difficulty of maintaining the economies of agglomeration and scale without paying their diseconomies is expressed in the presidential address of Ullman: "problem remains to design cities to take advantage of scale economies and the other advantages of concentration, and at the same time to provide optimum livability" (Ullman, 1962). Around two decades earlier, Stokols used the term optimal environments as those maximizing the fulfilment of people needs in a "human-environment optimization" cyclical feedback coupling "human transactions with the sociophysical environment", even if "in actuality, people are often forced by situational constraints to accept undesirable environmental conditions" (Stokols, 1978, p. 258).

As Lowry exemplified, "people seems able to extract apparently equivalent values from diverse environments […] when cities become too dismal for comfort, we retire to the suburbs and substitute the amenities of gardening for those of museums and bright lights" (Lowry, 1967).

Indeed, we cannot choose "our moment in life […] but we do have a range of choices as to location" (Harvey, 1993).

This bicentennial academic discussion culminated in the Neurourbanism: "a new interdisciplinary field of research […] on the interdependencies between urbanisation and mental wellbeing" (Adli et al. 2017, p. 183).

Does urban life make our brains more inclined to mental-health problems? Early studies,[3] result in line with contemporary neuroscientists analysis associating urban life with mental issues and *stress* (Fitzgerald et al., 2016), suggesting that the "*intensification of nervous stimulation*" of urban life (Simmer 1964 [1903], p. 410) would leave a mark on our psyche[4] (White, 1903).

Since then the work on urban stress evolved rapidly[5] also including comparative studies to speculate analogies with other animal behaviours under stress due to overdensity.[6]

When the stress response remains constantly on, as in a frenetic urban life, psychiatric problems arise, particularly in those genetically disposed and in the youngers when the brain is developing.[7]

Even if the higher rate of mental health issues in cities may affect "only" a small percentage of the urban population it is still a sign that something "wrong" is happening in urban environments to our psyches and it could be extended also to other urban dwellers regardless of visible manifestations of some mental disorders.

People's preferences toward the place to live, as well as life satisfaction and mood/"happiness", are generally in favour to less urbanicity levels too. We therefore ask ourselves *why* the majority of the world population is yet increasingly deciding to move to cities despite roughly 2/3 of them stating to not prefer living there and to be unhappier-less satisfied and despite empirical evidence of higher psychosis incidence.

2. Urbanicity preference and life satisfaction

"Many surveys about quality of life in cities invariably suggest that it is in smaller cities that the highest quality of life is achieved" (Batty, 2018, p. 95).

Attitudinal surveys show that 44% of Americans nominated small towns or rural environments as the best kind of places to live; 30% nominated suburban environments, and only one in five indicated cities (Fig. 1). European surveys suggested similar results (Knox & Pinch, 2006).

[3] Malzberg, 1930; Schroeder, 1942; Park & Burgess, 1967 [1925]; Milgram, 1970; Glass & Singer, 1972.

[4] For a recent review of empirical researches linking urbanicity with mental illness see D'Acci, 2020. While empirical association between natural environment and various positive mental effects have been shown in: Seresinhe et al. 2019; Beyer et al. 2014; Maas et al. 2006; Cassarino & Setti, 2015; Tennessen & Cimprich, 1995; Hartig et al. 2003; Berto, 2005; Berman et al. 2008, 2012; Taylor & Kuo, 2009; Kaplan & Berman, 2010; Roe et al., 2013; Cackowski & Nasar, 2003; Kweon et al., 2008; Berman et al., 2008, 2012; van den Berg & Custers, 2011; Ulrich et al., 1991; Parsons et al., 1998; Wells & Evans, 2003; Kweon et al., 2008; van den Berg et al., 2010; van den Berg & Custers, 2011; Ward Thompson et al. 2012; Hartig et al. *2014*; Alcock, White, Wheeler, Fleming, & Depledge, 2014; Craig et al. 2016; Park et al., 2010; Kühn et al., 2017. Finally, for linkages between natural environment and longevity and mortality see Takano et al., 2002; Mitchell & Popham, 2008.

[5] Altman, 1975; Cohen & Lezak, 1977; Seeman, 1975; Schopler & Stockdale, 1977; Lipowski, 1971; Craik, 1973; Calhoun, 1973; Ramsden, 2012.

[6] In line with famous rat researches (particularly those of Calhoun, 1962), suggesting that crowding makes more aggressive the rats inclined to violence-evoking social cues, and makes unaggressive those timid, therefore "it exaggerates pre-existing social tendencies" (Sapolsky, 2018, p. 298), excluding outliers – e.g. Tokyo, Hong Kong, Singapore, biased from political-cultural systems, efficient policy force control, and a high level of diffused wealth – superlinear relationships between urban size and crime (Newbury et al., 2016) has been repetitively reported in urban scaling (West, 2017): a coefficient of 1.29 in a log-log regression between population and homicides was found in Brazilian cities (Alves et al., 2015), namely by doubling the city (+100% inhabitants) homicides increase by +145%, meaning 45% more than expected from a linear relationship; a coefficient of 1.16 was also found in US, European, Chinese cities, namely by doubling the city you have 123% more crime, 23% more than expected (Bettencourt et al., 2007).

[7] Abbott, 2012; Herman & Cullinan, 1997; Tost et al., 2015; McEwen, 2013; Champagne, 2013.

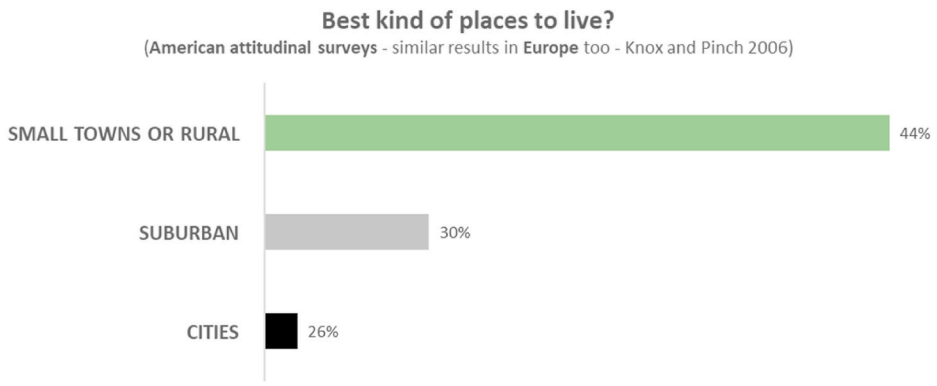


Fig. 1. American attitudinal surveys. Percentages of replies about the best kind of places to live being small town or rural environment, suburban environment, or cities. Source: elaboration from Knox & Pinch, 2006.

An even higher percentage related to the 'natural or small town' option resulted[8] when asking:

"If by living in a city (Fig. 1) or not in a city (Figs. 2–5) you would have the same services, the same job and level of richness, and the same closeness to your job, family and friends, where would you prefer to live?", followed by a figure (Fig. 2) as reference for the visual idea of 'city' and 'not city': by underlying the *ceteris paribus* imaginary condition, a very high percentage of respondents indicated the best place to live as the natural environment (Fig. 3), however still around 1/3 would prefer cities.

Studies consistently indicate rural living as being preferred in the richest countries while urban living in the poorest. A first interpretation is related to the difference between *preferring* urban life and *needing* it. Possibly the richest contexts allow opportunities[9] also in/from low urbanicity environments, therefore people are freer to decide the *preferred* place[10].

From a regression on a sample of almost 300 thousand respondents across countries, it resulted that "the excess of urban over rural life satisfaction is typically large at low levels of development, but tends to disappear or even reverse at advanced levels. This levelling of life satisfaction differences by location is due largely to a convergence in urban and rural occupational structures, income levels, and education. The key roles of income, occupation, and education [see Figs. 3–7 in Easterlin et al., 2011, p. 2194] are evident in both across country and within-country analyses" (Easterlin et al., 2011, p. 2195). This finding was also mentioned from Knox and Pinch (2006, p. 152): "[…] the apparent ambiguity of results that show people professing to prefer rural or small-town living but whose behaviour has brought them to the city, presumably in pursuit of a higher material level of living. The city emerges as neither good nor bad, but as a 'necessary evil'"; or to use the words of Lynch describing the city as "an unfortunate economic necessity" (Lynch, 1984, p. 255).

The academic literature abounds in such results and we briefly see a few of them.

A recent study on a sample of more than half a million respondents in Canada indicates life satisfaction in towns and rural areas higher than in cities (Helliwell et al., 2018).

Fassio et al. (2013) and Lawless and Lucas (2011) found higher density being associated with lower life satisfaction after controlling for key variables. The former controlled for sex, age, marital status, income and chronic disease in a Northern Italy region (Piedmont) and the latter indicated that Americans are *happier* in smaller areas, rather than 'just' *preferring* them (as already resulting from much earlier studies such as Fuguitt & Zuiches, 1975, Fuguitt & Brown, 1990.

Other studies empirically associating high density with low life satisfaction, quality of life or various social psychological processes are, respectively, Lawless and Lucas's (2010), Bell (1992) and Adams (1992).

That people might be unhappy in big cities is not a novelty, but rather a continuous confirmation under different types of variables, methods, circumstances; since the beginning of the 70s Fischer (1973) wrote about an 'urban malaise' making urban dwellers unhappy, regardless the specific causal factors.

A regression analysis in Okulicz-Kozaryn and Mazelis (2018) explored the association between 9 levels of urbanicity, called "urban-rural continuum" (ranging from 1, >1million inhabitants, to 9, <2500) and self-reported life satisfaction.[11] When introducing controlled variables (density, crime, housing stress, education, employment, poverty, personal income, percentage of Black) they found a statistically significant[12] positive coefficient[13] for the "urban-rural continuum": the smaller the settlement the higher the life satisfaction.

Among other studies examining the urban-rural continuum life satisfaction, Sørensen (2014) conducted an ordered logit model on a sample of almost 30 thousand people across Europe, and, after

[8] From an online questionnaire by the author (2014) on a sample of 110 respondents: 49 from Europe, 34 from the Americas, 20 from Asia, 4 from Africa, and 3 from Australia; 99 with a degree, 11 without; 33 between 18 and 30 years old, 49 between 31 and 50, 24 between 51 and 70, and 4 older than 70. The questionnaire was conducted by the author. The sample is extremely small and not properly stratified neither by regions nor by social-educational status.

[9] Job, income, social status, services, education, amenities, cultural inputs, mobility, access to health systems.

[10] This concept is expressed also by Okulicz-Kozaryn in his recent paper: "The fact that people are happy in cities in poor countries [Glaeser, 2011] is arguably not due to cities' "greatness." It may be simply that life outside of the city in a poor country is unbearable and lacking the necessities, such as food, shelter, sanitation, and transportation. Quality of life or so called "livability" differs greatly between urban and rural areas in developing countries […] Simply, the urban happiness in developing countries is rather due to unfavourable conditions outside of cities, not due to virtues of cities" (Okulicz-Kozaryn, 2017, p. 145).He also makes a point in another often misinterpreted link: "People are happier in more urbanized countries than in less urbanized countries, but it does not mean that people are happier in cities than in smaller areas [Glaeser, 2011]. More urbanized countries are simply richer, healthier, better governed, etc., than less urbanized countries. This is one of the most agreed upon findings in happiness literature: In a cross-section of countries, people are happier in more developed areas" (Okulicz-Kozaryn, 2017, p. 145).

[11] "In general, how satisfied are you with your life?", quantified from 1 (very dissatisfied) to 4 (very satisfied).

[12] p-value<0.05 for two models, and <0.001 for one model.

[13] 0.0094 in the model including all the control variables, and 0.0121 the one most statistically significant with the lowest p-value. Even if apparently small it is rather relevant if we consider that more than 90% of respondents indicated 3 (satisfied) or 4 (very satisfied) with a very small standard variation across counties (only 0.06).



Fig. 2. 'City or not City?' Source: Author's photos (Sydney, Paris, London, Dronero, Verfeil-sur-Seye, Palma de Maiorca, Alps around Turin, wood house in Uruguay, around Milford-on-Sea).

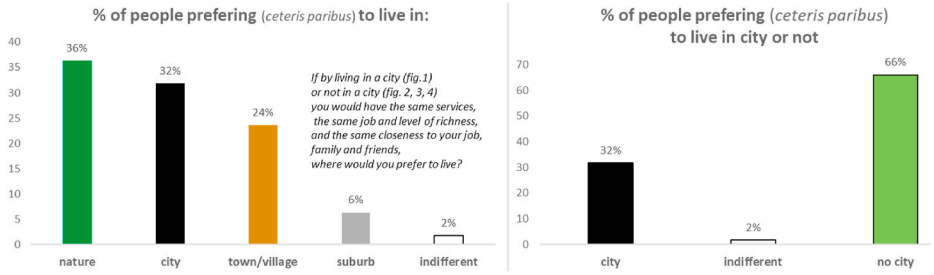


Fig. 3. Percentage of people preferring, *ceteris paribus*, to live in cities or not.

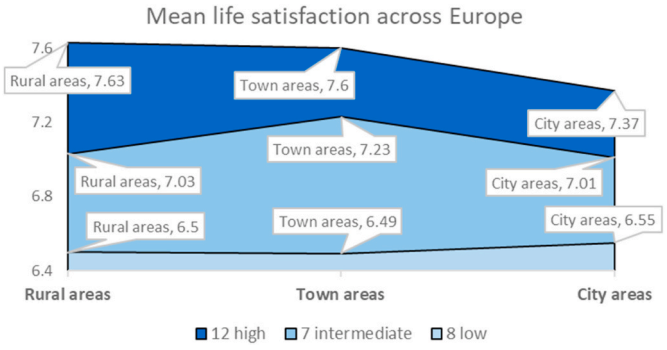


Fig. 4. Mean life satisfaction across European Union countries (12 richest, 7 intermediate, 8 poorest). From a sample of almost 30 thousand people across Europe. Source: elaboration from Sørensen, 2014, Table 3 and 4, p. 1457. Life satisfaction measured from 1(lowest) to 10.

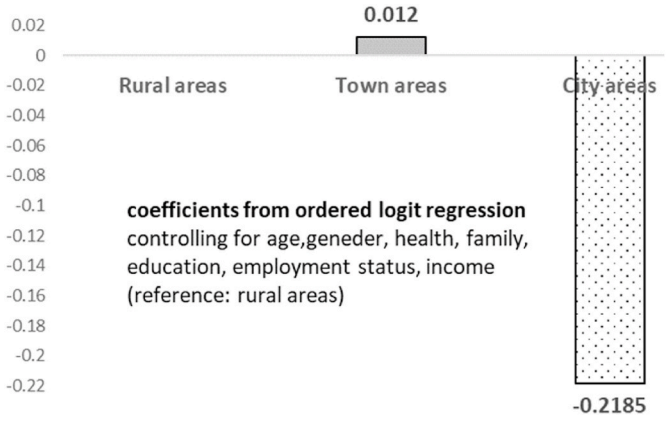


Fig. 5. Coefficients from an ordered logit regression. From a sample of almost 30 thousand people across Europe. Source: elaboration from Sørensen, 2014, Table 3 and 4, p. 1457. Life satisfaction measured from 1(lowest) to 10.

controlling for age, gender, health, family size, education, employment status, monthly household income, found city areas as statistically significantly unhappier than rural areas and towns (Figs. 4 and 5) (Sørensen, 2014 table 4, p. 1457). The result was confirmed also when he tested different criteria to define rural-urban areas. A s Fig. 10 shows, the gradient is monotonic for the richest countries.

Berry and Okulicz-Kozaryn (2013) using a similar sample size

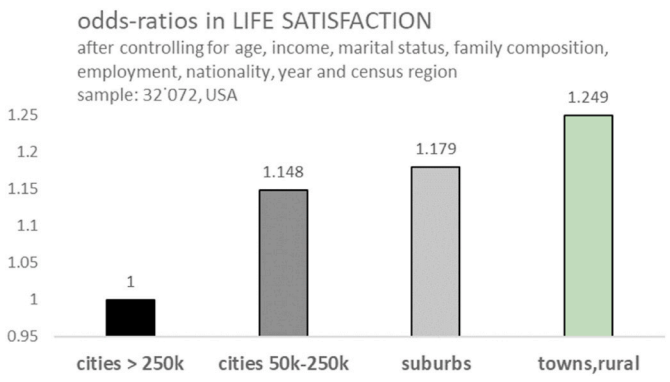


Fig. 6. Odds-ratios, coefficients from an ordinal logistic regression on a sample of more than 30 thousand people from the USA (1972–2008: General Social Survey). Source: elaboration from Berry and Okulicz-Kozaryn (2013) tab 1 p. 879.

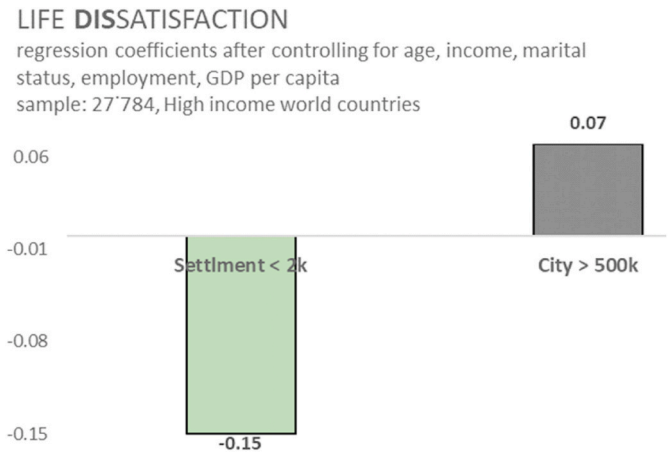


Fig. 7. Life Dissatisfaction regression coefficients after controlling for age, income, marital status, employment, GDP per capita. Sample: 27784, High-income world countries. Source: elaboration from Berry and Okulicz-Kozaryn (2009) Table 3 p.121.

(around 30 thousand individuals[14]), classifying urbanicity level in 4 categories,[15] life satisfaction on a Likert scale of 3 values,[16] and controlling for age, income, marital status, employment, family composition, nationality, year and census region, by an ordinal logistic fixed-effect regression they obtained statistically significant odds ratios[17] continuously increasing from large cities to rural (Fig. 6), indicating that the lower the urbanicity degree the higher the life satisfaction.

In another study (Berry & Okulicz-Kozaryn, 2009) they also regressed data from the World Value Survey during the period 1995–2004 and the higher life *dis*satisfaction in the richest countries was, again, statistically significantly[18] confirmed to be in the big city compared to small settlement, even after controlling for income, marital status, employment, age and GDP per capita (Fig. 7).

Using a sample of 6563 surveys from the General Social Survey for the years between 2000 and 2008 in the United States, Sander (2011) found a continuum monotonic gradient in the percentage of respondents saying to be happy ("very happy" or "pretty happy") across 6 degrees of urbanicity (Fig. 8): rural; other urban; suburbs of 13–100 largest metropolitan areas; suburbs of 1–12 largest metropolitan areas; central city of 13–100 largest metropolitan areas; central city of 1–12 largest metropolitan areas. He then ran a probit regression considering only two degrees of happiness replies ("very/pretty happy", or "not happy"), and using only the variable "less urban" indicating areas which are not within the 100 largest metropolitan areas. After controlling for health, income, age, Black/Hispanic, nationality, religion, employment, marriage and family status, education and region, he found a statistically significant (p-value<0.001) positive coefficient for the variable "less urban" (0.14) indicating the people living in a less urban environment are more likely to be happy than those living in one of the 100 largest metropolitan areas.

Another confirmation of urban living having negative associations with self-reported life satisfaction was found in Sweden from a study of Gerdtham and Johannesson (2001). They regressed (Ordered Probit model) life satisfaction[19] of 5'106 Swedish adults controlling for sex, age, family composition, employment, education, and found that living in one of the three biggest cities (Stockholm, Gothenburg or Malmo), rather than in the countryside or cities < 30k inhabitants, statistically significantly (p-value<0.05) decreased the probability to feel "satisfied most of the time".

Also, Glaeser et al. (2014) in a regression controlling for year fixed effects, month fixed effects, age, race, sex, education, marital status, and family size, found self-reported life satisfaction negatively associated with population size in the USA (Glaeser, Gottlie, Ziv 2014, tab 2, p.45).

Similar results are typically obtained from a remarkable number of studies regarding the developed world, however, a study about life satisfaction in China on a sample of 1'288 people, indicated that the new urban dwellers (rural-to-urban migrants, and *in situ* urbanized rural residents) settling in small cities (200 thousand – 500 thousand inhabitants) rather than larger (or smaller), have higher life satisfaction (Chen et al., 2015).

2.1. *A genetic perspective of urban life*

Human Sociobiology, or Human Evolutionary Psychology[20], and Sociogenomics,[21] pursue to interpret the psychological and cultural life of *Homo sapiens* in terms of their genetic inheritance from an evolved species point of view.

Notorious anthropologists, psychologists, biologists, ecologists, geneticists, palaeontologists, behaviourists, sociologists, architects and urban planners, mathematicians, neuroscientists, environmental

[14] Data collected from the General Social Survey from 1972 to 2008 in the USA

[15] Rural-small towns: 2500–5000 or smaller or open country; suburbs: suburbs of medium-large cities, or in towns between 10'000–50'000; small cities: 50'000–250'000; large cities: >250'000.

[16] 1: not too happy, 2: pretty happy, 3: very happy.

[17] p-value smaller than 0.001 for "rural-small towns" and "suburbs", and smaller than 0.01 for "large cities", having "small cities" as reference.

[18] $p < 0.001$ for the coefficient "settlement<2k", and $p < 0.05$ for "city>500k".

[19] Measured in a 3 levels scale: the daily life is a source of personal satisfaction: "never", "sometimes", "most of the time".

[20] Workman & Reader, 2021; Shackelford & Welling, 2019; Wilson, 1975.

[21] Ruiz-Ortiza & Tollkuhn, 2021; Braudt, 2018; Robinson et al., 2008; Robinson et al., 2005.

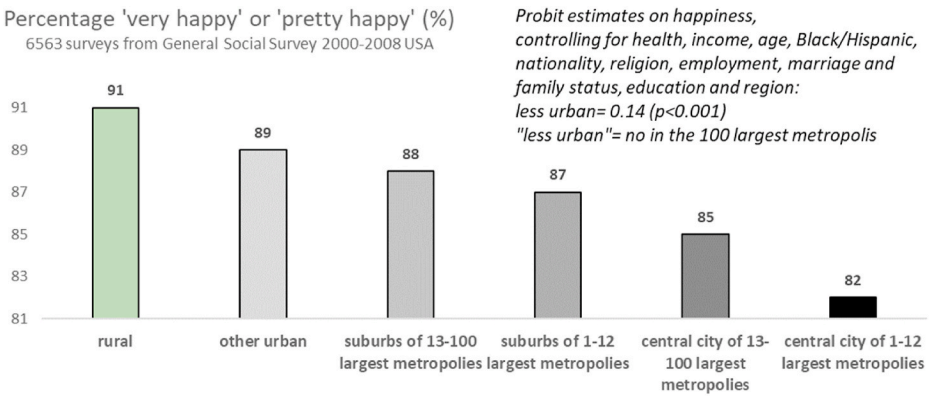


Fig. 8. Percentage of respondents self-declaring "very happy" or "pretty happy" from 6563 individuals (General Social Survey 2000–2008 USA) and Probit regression coefficient for the variable "less urban" (not living in one of the 100 largest metropolis) controlling for relevant key variables. Source: elaboration from Sander, 2011 tab 1 and tab 2 p. 278.

economists, philosophers, and archaeologists[22] are getting interested in how and if, as a species, we fit the urban psychophysical environments of modern societies.

It has been established how aspects of behaviours, temperaments, psychological predispositions, even if influenced from the environment[23] (which might activate or inhibit them or amplify/mitigate them or probably even "build up" them), are genetically coded.[24] Starting from this genetic evidence,[25] and recent epigenetic[26] surprises and neuroplasticity,[27] we ask: is *Homo sapiens* already adapted to megacity-conurbation life thanks to our brains' plasticity and recent evolutions in earlier forms of town-city life? Are we best expressing our genetic potential in cities, which rather than a negative constructed niche is an enriched environment whose sociocultural system frees us up from the constrains of small population sizes of the pre-agricultural/pre-industrial revolution? While urban life insulates us from some selective pressures our ancestors adapted for, it also poses new challenges. Are these new challenges creating a selective pressure strong enough to induce the related genetic adaptations and, if so, how fast to avoid prolonged evolutionary mismatch? Our deep nature has developed in the last two million years, since the Pleistocene era, if not even earlier. Genes capture the evolutionary responses of prior populations to behaviour selection, while a certain environmental flexibility allows animals, like us, some adjustment during their lifetime. It is an inextricable game between genes and environment/context within which, in the short term, the former fixes the window of manifestable possibilities moldable by the latter, while in the long term the latter shapes the former.

Shifting from the macroscale reasoning (*Homo sapiens*) to a microscale (person), the bigger the settlement, the smaller the shared environment and the bigger the non-shared, which allows more opportunities to express/match your genes rather than having to conform-satisfy costumes-habits of family and the small village where everyone knows everyone else.

All the above does not take into consideration the times when cyborgs and genetically modified humans could exist.

3. Then … why people go to/remain in cities?

When human fluxes are voluntary, it "has important advantages, since it brings skill and labor to places where they can best be used and people to places which they prefer. But much mobility is far from voluntary, and so moving entails serious costs, of which psychological depression is not the least" (Lynch, 1984, p. 251).

For some, staying in small settlements means to suffer hunger, while others move voluntarily. Among the latter, some are happier in cities but some not. When this is the case we wonder why they voluntarily internally migrate (or, those born there, stay) to higher urbanicity levels and concisely list possible replies (Tab le1):

1. Perhaps people moving to cities are not aware of the real daily life conditions they actually will experience once there? Maybe newcomers have over-optimistic expectations from urban life (Cardoso et al. 2018), or an altered estimation of their *predicted utility*

[22] Anthropologists (e.g. Downey G., Odling-Smee J., Kendal J.R., Tehrani J.J., Hare B., Lewis E.D., Churchill S.E., Franciscus R.G., Tan J., Shea J.J.), psychologists (e.g. King P.A., Barret J.L., Greenway T.S., Schnitker S.A., Furrow J. L., Brown G.R., Kanheman D., Twersky A., Van Wingerden M., Kalenscher T., Chen C., Kaplan S., Duque J.F.D., Fitzgerald C.J., Danner K.M., Ittelson W.H., Hinds J., Sparks P.), biologists (e.g. Feldman M.W., Gilbert S.F., Creanza N., Kolodny O., Wang E.T., Kodama G., Heinrich B., Cieri R.L.), ecologists (e,g, Matthews B.) geneticists (e.g. Myles S., Moyzis R.K., Pritchard J.K.), palaeontologists (e.g. Ward P.), behaviouralists (e.g. Laland K.N.) sociologists (e.g. Törnberg A., Andersson C.), architects and urban planners (e.g. Downton P., Jones D., Zeunert J., Deuskar C.), mathematicians (e.g. Baldi P.), neuroscientists (e.g. Turner R., Egan G.) environmental economists (e.g. MacKerron G., Mourato S.), philosophers (e.g. Buller D.J.), and archeologists (e.g. Durrani N.).

[23] Persson, 2020; Tikhodeyev & Shcherbakova, 2019; Kiive et al. 2017; Laas et al. 2014; Freund et al. 2013; Bendesky & Bargmann, 2011; Champagne, 2010; Belsky et al., 2007 (Fig. 1); Weaver et al. 2004; Caspi et al. 2003; Turkheimer & Waldron, 2000.

[24] By typing "gene behaviour" as key words on sciencedirect you got more than half million results – more than half just from the last 10 years–371641 results from PubMed, becoming more than half million when typing "genetic behaviour", and more than three and half million when typing it on google scholar. Among such a gigantic and rapidly growing bibliography, see: Niepoth & Bendesky, 2020; Pulver et al. 2020; Franke & Reif, 2020; Fernàndez-Castillo et al., 2020, Duque-Wilckens et al. 2020; Zwir et al. 2020; 2016; O'Leary et al. 2019; Harro et al. 2019; Tyree et al. 2018; Røysamb et al. 2018; Sanchez-Roige et al. 2018; Baran et al. 2017; Tielbeek et al. 2017; Plomin et al. 2016 (Fig. 1); Fernàndez-Castillo & Cormand, 2016 (Fig. 1,Tables I and II); Jones & Norton, 2015; Bouchard, 2014 (tab 1); Blouin et al. 2013; Heinz et al. 2011; Katz, 2011; Robinson et al., 2008; Donaldson & Young, 2008; Caspi et al. 2002; Baker et al. 2001; Lesch & Merschdorf, 2000.

[25] Around 2/3 of greatly publicised findings in psychology failed to be replicated (Open Science Collaboration, 2015), while findings of behavioural genetics are large in magnitude, based on six- and seven-figure samples, have been replicated in many decades and countries (Plomin et al., 2016).

[26] Berretta et al. 2021; Herrel et al., 2020; Doherty & Roth, 2020; Silva & Steffen, 2019; Bollati & Baccarelli, 2010; Bird, 2007; Goldberg et al., 2007; Weinhold, 2006.

[27] Zerilli, 2020; Valk et al. 2017; Ghalambor et al. 2015; Chattarji et al. 2015; Dulac, 2010.

Table 1
Urbans types.

UNSATISFIED (1,2) OR RELATIVELY SATISFIED (3,4b,c) URBANS: POSSIBLE REASONS			
NEWCOMERS TO CITIES	(1) overoptimistic expectations + (4b,c)		*DREAMERS*
	(2) self-selection	(2a) overambitious – later disappointed	*AMBITIOUS*
		(2b) more prone to lower happiness or extreme moods	*MOODIES*
BORN IN CITIES	(3) unaware of better niches for them		*UNAWARES*
	(4) aware but	(4a) cannot move for habits and practical anchors	*ANCHORED*
		prefer to trade-off with urban advantages (4b) within generation (4c) across generations	*CALCULATORS*

(Kahneman, 2000) of moving to cities, which is a valuation-belief of how good/bad the future *experienced* utility is likely to be.[28]

2. Self-selection[29]:
   a. Migrants to cities might have higher levels of aspirations which once disappointed may mean lower satisfaction levels declared (Chen et al. 2015). But what about those who have been in cities for generations?
   b. "some areas attract people who are disproportionately prone to be more or less happy" (Glaeser et al., 2014, p. 2); however, for those in cities since generations[30] still reporting lower happiness, this would require a high happiness genetic component[31] and able to pass through kin, generations, reshuffles and mutations. Even assuming the latter possibility, dose-response studies indicate a *causal* link between mental disorders and time spent in cities.[32]
3. Those already born and raised in cities may not be aware of better overall lifestyles offered from lower urbanicity levels? They are *unknowingly* less happy than they could be.
4. Or maybe some of them are aware but:
   a. Even liking to move, it is too problematical – psychologically and practically – to move away from families, friends, loved ones, roots, and life styles absorbed in the first 20–30 years of life?
   b. Or even if urban dwellers are [*knowingly*] "unhappier" they still *prefer* to have higher incomes, amenities, services and social status, treating subjective wellbeing as *one* of many variables of the utility function [if any exist, and, if so, a rational one] rather than *the* ultimate utility function itself.[33]
   c. Or for across generations social mobility.

3.1. The utility function revisited

If we decide to consider the last two above possibilities (vi and vii.), the paradox of how to conciliate the urban-rural happiness gradient[34] with the continuous growth of urban dwellers might be rethought under the perspective of considering "happiness" as *part* of the final goal of our lives rather than *the* goal itself, which also somehow links:

a. spatial economically with the Spatial Equilibrium approach (our spatial location decisions are an offset between benefits and costs of any sort, Glaeser, 2008);
b. Allometrically[35] with the power law function between city size and urban outputs (often super-linearly scaling for socio-economic outputs: creativity, GDP, crime, illness, …and for some studies for CO2 emission and congestion; sub-linearly for infrastructural: total street lengths, land area, electrical cables, …) presenting benefits and costs associated with city size, where one of these costs is the lower life satisfaction probably also due to congestion, pollution, crime, …., which several empirical pieces of evidence show to increase more than proportionally (super-linearly) when city size increases;
c. Philosophically with the Aristotle's Eudaimonism (Aristotle, 2009) where the greatest accomplishment of a person life resides in the realization of her potentialities, her "daimon".

3.1.1. Spatial equilibrium or subjective spatial dis-equilibrium?

Point 'a' refers to the Spatial Equilibrium whose logic suggests that the lower life satisfaction achievable in an urban area is somehow offset by other types of benefit such as urban amenities, services, higher real incomes, social mobility, a chance to increase professional ambition, and so on. Vice versa for a rural (or less urban) area: higher "life satisfaction" and mental health (or "happiness"[36]) are 'paid' by lower real incomes, less urban amenities, and so on. Sørensen (2014) quantified this amount, in Europe, as around € 9000 per year: "for a city dweller to get to the same level of life satisfaction as the rural dweller, the city dweller would need to increase his or her monthly income by €764" (Sørensen, 2014, p. 1458).

However, in scenarios of radically different spatial location decisions and with long temporal implications, such as deciding to live the entire life (or a substantial part) in a megacity, a city, a town, a village, or the rural countryside, and when people are actually free to decide to stay or to move, it could be better defined as '*Subjective* Spatial *Dis*-Equilibrium': the overall utility function (U) – which a person maximizes against her financial budget (i = input money: wage) and her costs (o = output money: housing costs, commuting costs, taxes …) in relation with the *subjective* advantages (a) by living in a specific location – is *not* constant (k) across *all* locations ($U(i,o,a) \neq k$); that is why she moves or stays.

(1) When the 'subjective' equilibrium among different locations is broken (i.e. a location clearly implies an overall higher U, even at

[28] The actual manifested choice to move to/stay in an environment of a certain urbanicity degree (a rural settlement, a village, a town, a city, a megacity) passes throughout another type of utility referred to as decision utility which is influenced from so many factors such as your estimation of the predicted utility and how you filter your memories from past experienced utility (remembered utility) (Berridge & O'Doherty, 2013).
[29] Lu & Qin, 2014, Tong & Piotrowski, 2012.
[30] Meaning being born there rather than having [self] selected them.
[31] Barlow, 2019, Polderman et al. 2015.
[32] van Os et al., 2010.
[33] Glaeser et al., 2014.
[34] Okulicz-Kozaryn, 2017, Berry & Okulicz-Kozaryn, 2013, Sørensen, 2014, Sander, 2011, Okulicz-Kozaryn & Mazelis, 2018.
[35] Bettencourt et al., 2007, Bettencourt, 2013, Louf & Barthelemy, 2014, Fragkias et al., 2013, Oliveira et al., 2014.
[36] I prefer to write life satisfaction and happiness under quotation marks because one can be satisfied, or happy, with a low income but in the countryside rather than richer but in the city. Rather than see it as: "I give up a bit of life satisfaction for more accessibility to amenities and services", it would be as: "I am more satisfied in life (in the *long run*) precisely because of giving up some *daily* life satisfaction by not living in a more natural and less stressful rural environment in exchange of a better professional career". Or the other way round: "I am more satisfied in life (in the *long run*) because of giving up a professional career for a *daily* higher life satisfaction by living in a peaceful rural environment". The key is the temporal scale by which we think about life satisfaction: daily or in the long run? Or we can simply clearly define what we mean by life satisfaction. If we prefer a basket of factors (e.g. lower income, lower urbanicity, more peace, less services, lower *daily* life satisfaction ….) against another (e.g. higher income, higher urbanicity, more stress, more services, higher *daily* life satisfaction …) it *might* (see next discussion in the paper about irrational, biased decision making and feelings) mean that we feel overall more satisfied about our life (in the long run, in a vision "from the above") by selecting the basket we prefer.

same *i*) she might move; (2) stay otherwise; (3) or, in the latter case, she might still move to enjoy a different basket composition of the ingredients[37] of *U* even if the overall *U* keeps constant (namely when moving within the same subjective indifference curve of her own spatial utility function). In cases (2) and (3) we are in a subjective spatial equilibrium (e.g. being an entrepreneur in a city or a fisherman in the countryside, for someone might have subjective overall roughly mutually compensatory trade-offs: very different *i*, *o*, *a*, but somehow equivalent *U*), while in case (1) in a subjective spatial dis-equilibrium (when one *does* prefer to be a peaceful fisherman in a superb mountain lake scenario rather than a stressed entrepreneur in a crowded urban scenario, or vice-versa). To use the above Sørensen's monetary quantification, if you propose a rural dweller an extra € 9000 per year if she moves to the city, there are cases where she is indeed undecided because both baskets (rural life *versus* urban's but plus € 9000 per year) are rather indifferent/equivalent (cases 2 and 3), while there are cases in which she is not undecided at all (case 1) and therefore she does not decide by 'heads or tails' where and how to spend her life.[38]

3.1.2. Urban allometry

Point 'b' relates to empirical evidence of some sort of universal urban laws (West, 2017): despite the fact that cities and regions developed independently and remotely along unique historical paths, genius loci and geographical environments, an empirical regularity is systematically appearing between population size and various urban factors. The reasons for these surprising allometric relations are still under investigation and have great promise of increasing efficiency to these societies able to control the distribution of their populations' size.

3.1.3. Aristotelian daimon

Point 'c.' involves the realization of "both the potentialities that are shared by all humans by virtue of our common specieshood and those unique potentials that distinguish each individual from all others" (Waterman, 1993, p. 678).

A slightly similar concept of the former of the above two potentiality types is mentioned in Inglehart when he recalls to us that "humans have evolved to seek meaningful patterns" (Inglehart, 2018, p. 159), which might also evoke the twentieth canto of the *Inferno* of Dante Alighieri's "La Divina Commedia": "considerate la vostra semenza: fatti non foste a viver come bruti, ma per seguir virtute e canoscenza".[39]

Probably the human innate perseverance toward achieving the Aristotelian daimon's realization as a species and individuals drives us to an urban environment pursuing better education and a higher chance of social/cultural escalation despite (particularly for some) the urban costs.

In a milestone paper, Simon describes how "A real-life decision involves some goals or values, some facts about the environment, and some inferences drawn from the values and facts" (Simon, 1959, p. 273); although each of these steps (goals/values, facts and inferences) might be subject to certain degrees of – often 'rationally' systematic – irrationality and biases (see recent developments from Behavioural Economics, e.g. in Dhami, 2016), we can assume that most of us cultivate, mature personal life purposes which arise within contextual environments surrounding us and requiring certain environments for their accomplishment.

"We have objectives in life other than being satisfied, and we may knowingly make choices that reduce happiness […] if those choices further other aims (Luttmer 2007; Benjamin et al., 2011)" (Glaeser et al., 2014, p. 4); seeing happiness/life satisfaction as one ingredient of the utility function rather than the function itself, is in contradiction with part of the 19th-century economists (e.g. J.S. Mill) whose approach was probably being influenced by Bentham (1789) inclination to see happiness as a determinant of behaviour. This tendency to think about happiness as the ultimate goal of individuals traces back to ancient philosophers such as Aristippus (strong hedonistic school putting pleasure as life's main goal), Epicurus (pleasure, achieved with modesty, is both the end and the aim), and medieval philosophers as Augustine and Aquinas (above all, what humans pursue is happiness).

A different philosophical tradition (the Stoics, Epictetus, Kant, Mandeville) rejects that what people do/should maximise is happiness. For around a century, major economists (e.g. Fisher, Stigler, Becker, Rayo) abandoned paralleling happiness with utility: a utility-maximizing individual could decide to live in a city despite knowing in advance its negative psychological influences on her happiness/life satisfaction, or in a rural village despite its lower income, professional career, fewer services and amenities.

3.2. Urban dwellers' utility

So, why in cities?

Excluding those who *truly prefer* urban life (around 1/3) for the urbanity feeling itself, who are *definitely* happier and physically-mentally healthier than living in other contexts, there might be a certain proportion of urban lovers who genuinely *believe to prefer* living in cities

[37] Peaceful picturesque rural life, professional career, fizzy urban life, closeness to cinema, theatres, universities, museums …, freedom (or depression) of the anonymous city, clear air, blue sky, singing birds and crickets, income ….

[38] From Glaeser, 2008: "The key theoretical element in urban economics is the idea of a spatial equilibrium: there are not rents to be gained by changing locations" (p. 47). "[…] the hallmark of urban and regional economics is the spatial equilibrium concept – the idea that people are indifferent across space" (p. 165). "[…] people can't improve their condition by moving" (p. 205). My brother a long time ago decided to move from our mother city, Turin, to the mountains 70 km away and, if you ask him, he gained an incomparable higher quality of life; but the latter is not simply a *compensation* for lower services, which overall could make *comparable* staying in Turin with higher services or in the mountain village with lower; on the contrary, it is *the reason* itself to make much *higher* his own *overall utility* function associated to living in the mountains. The two options, Turin/mountain, are *not* even slightly comparable/*indifferent* for him. He literally *improved* his condition by moving. I heard the same story so many times from friends telling me how much better *overall* their lives became after moving out from the city to nearby villages or countryside. They are without doubt *not indifferent* between living in the city or in the nearby countryside or villages. They definitely improved their conditions by moving: that is ultimately *why* they moved, and if you ask all of them, they will never return to the city at all. Of course I also heard similar stories from people who moved from villages or countryside to cities. Therefore, if we see it from a *subjective* point of view, when a person decides to move from a city to a small village in the nearby countryside (or vice versa), even if she will pay a different amount of time and money in commuting (which probably is offset by a bigger/cheaper house, and different life style) or if she will get a different income and/or job, she is *not* indifferent across spaces and she actually does *improve* her condition by moving … otherwise *why* does she move? (excluding case 3 above). "Individual choice over locations produces the single most important concept in urban or regional economics: the spatial equilibrium. This core insight comes from the idea that if identical people are choosing to live in two different places then those two different places must be offering an equivalent bundle of advantages, like wages, prices and amenities. Essentially, there must be no potential for arbitrage across space" (Glaeser, 2008, p. 4) But … what criteria should we follow to define people as "identical"? Maybe some of them are under the assumption (3) that their own overall *U* related to these locations is indeed equivalent both across these locations and across people (therefore: "identical" people). However, if "identical" people choose such extremely different places to live (e.g. a small flat in the city centre, a large suburban house, or a cottage in nearby countryside) maybe they are not that "identical" after all and the bundle of advantages, prices and amenities is not *equivalent* for the same locations for *different* people.

[39] Consider your origins: you were not made to live as brutes, but to pursue virtue and knowledge (Author's translation).

regardless of the objective signs of physical and/or psychological discomfort[40] they experience which are *also* related to their own urban life but that they fail to recognise, or, if they do, they fail to recognise their direct link with urban life.

We might call *truly urbans* the first who truly prefer and physically/psychologically benefit from urban life, while the second *urban believers*, who believe to prefer city life despite objective evidence of negative effects on them.

In this paper, we focus on the latter (urban *believers*) plus the other roughly 2/3 declaring to not prefer living in cities even though they *do*, or *have to*, who we can call, respectively, *involuntary urbans* and *forced urbans*. The latter are indeed *literally* forced into cities or they would die or live in extreme poverty and basic service-infrastructure deprivations otherwise.

There is actually another category: those who prefer (truly or believing to prefer) urban life but because they never experienced other life types and if they would they could probably change their minds (or vice versa), and we can call them *unaware urbans* (Tab le2).

Referring to observed quantified urban advantages (superlinearly scaling: by doubling city size, in terms of inhabitants, you have a roughly 15% increase in wages, wealth, creativity, …and sublinearly: around 15% saving in infrastructure), Geoffrey West (West, 2011) said

> "this, no doubt, is the reason why a million people a week are gathering in cities. Because they think that all those wonderful things – like creative people, wealth, income – is what attracts them, forgetting about the ugly and the bad".

This sentence contains at least three key concepts behind the words "think", "wonderful", and "forgetting" which we are going to briefly discuss starting with "wonderful".

Usually – compared with rural areas, villages and small towns – cities offer better careers, more money, more amenities and services, which are parts of human desires whose satisfactions drive individuals' life decisions. Contrarily to the narrow utilitarian economic view of human well-being conception – seeing emotions, feelings, behaviours and desires as metaphysically given (i.e. independent from social interactions), and the satisfactions of the latter as a source of well-being – human desires are profoundly social determined and, as such, their satisfactions do not necessarily enhance well-being (Hunt & Lautzenheiser, 2015, p. 538). This especially in the case of social status and/or material consumerism ambitions induced from socially determined desires. Someone might prefer cities because *there* is the place to get more chances (within or across generations) for higher social status and incomes which ultimately persuade you to feel more recognised and respected (both mostly socially determined feelings and desires) and to believe to feel happier by the consumptions of commodities. It might then be the case that one spends almost her entire life in a perpetual quest to consume and possess more and/or to achieve an ever higher social/power status, unaware that her aspirations change as her circumstances do; this consolidated detected evidence is referred to as *habit formation* by economists and *hedonic adaptation* by psychologists (Easterlin, 2003), also called *hedonic treadmill* (Brickman & Campbell, 1971) – based on the notion of *adaptation level* (Helson, 1964) – somehow similar to the concept of *satisfaction treadmill* (Kahneman, 2000) – based on the concept of *aspiration level* (Irwin, 1944). The more you *have* the more you want; the more you *are* the more you want to become.

If aspirations arise at *the same extent* as previous ones are realised, objective well-being may increase but not the subjective, and we talk about *complete* adaptation. Research findings indicate that material aspiration, comfort and positional goods are subject to complete adaptation effects as commensurately growing with income.

Under complete adaptation conditions, after a change in life individual subjective wellbeing would return to the original set point, which is the individual "baseline" level dependent from genes and personality. A major robust finding of well-being research is that life situations' contribution to "happiness" count only very little, and far less than inherited temperament and personality.[41] This empirical evidence in psychology is known as *set point theory*.

While psychologists tend to consider the dynamic gap between aspirations and attainments as determinant of satisfaction/subjective well-being, economists typically consider only attainments, namely "more is better" and life circumstances have *enduring* effect on "happiness" (Easterlin, 2003).

If we merge psychologists and economists' views – and add a touch of common sense from experiences in our own lives and those around us – we can say that having more (health, money, power, social status, comforts) is indeed better and often has life-lasting consequences which are nevertheless largely genetically framed within an inextricable game between genes and environment/context within which the former fixes the window of manifestable possibilities mouldable by the latter. Depending from life events and environments one could express her own *full* genetic potential or not; she may live her own life at a lower "happiness" and/or satisfaction, subjective (and objective) well-being level for which she is genetically predisposed, which would be the ultimate shame.

What if one underlives his genetic potential in enjoying life and achieving virtues, because of deciding to set his life in an urban setting to pursue socially determined desires which end up resulting neither that desirable and overall valuable nor that satisfying? We need a good education to get a good job to get good money to get good material satisfaction and, by the latter three, to get good social recognition. And usually, all this is achievable in cities rather than in rural areas or small villages. We can call urban *materialists* this typology of individuals who choose the urban life for materialistic purposes.

However, there is another face of the coin: homo sapiens "evolved to leave the beaten track, to try things out, to get distracted and generally look like we're wasting time […] the learning algorithms in our brain know that something we learnt by chance today will come in useful tomorrow" (Stafford, 2012). To get "distracted", stimulated, curious, and especially educated to treasure and elaborate information which in turn generates new knowledge and ideas, is typically boosted – and sometimes only possible – in cities, where you have schools, universities, cultural stimulus and opportunities to daily meet people carrying any sort of background, knowledge, habits, philosophies, promoting new ideas and, in a larger perspective, humanity progresses. Even though often the frenetic urban style compromises the peace necessary for the creative and contemplative process our minds need to study and produce well.

Part of those choosing cities for their lives are driven by these types of cultural goods and by the ambition to acquire more knowledge for

Table 2
Urban dwellers types.

URBAN DWELLERS		
TRULY PREFER URBAN ENVIRONMENT	→ and psycho-physically *benefit* from it	TRULY URBANS
	→ but *unknowingly* pay a psycho-physical cost from it	URBAN BELIEVERS
DON'T PREFER URBAN ENVIRONMENT	→ but still *decide* for it to trade-off costs and benefits	INVOLUNTARY URBANS
	→ but *must* live there (or jobless and/or at life risk)	FORCED URBANS

[40] Obesity, pollution related damages … insomnia, depression, chronic stress, inside loneliness, underground dissatisfaction ….

[41] Kahneman, 2000; Diener et al., 1999; Lykken & Tellegen, 1996, Myers & Diener, 1995.

Table 3
Utilities.

UTILITARIANISM	↗ ***Individual*** utilitarianism	→ ***intensity*** of pleasure	
	↘ ***Interpersonal*** utilitarianism	→ ***kinds*** of pleasure	
HAPPINESS as	↗ ***THE*** life's goal: $U \equiv (H) = f(x_1 + x_2 + \dots x_n)$		
	↘ ***PART*** of life's goal: $U = f(x_1 + x_2 + \dots (H) + \dots x_n)$		
UTILITY (*U*)	→ the greatest **good** for a person	→ Economists	→ ***people's choices*** as reflections of their utility
HAPPINESS (*H*)	→ positive **feeling** felt from a person	→ Psychologists	→ ***people's felt experiences*** (feelings) as reflections of their happiness
TEMPORAL SCALES:	↗ **CURRENT affect (*C*)**	$L \equiv \sum C$ if:	• $C = f(x_1 + x_2 + \dots +$ **Anticipatory Hedonic Inertia** from *L*): the joy of pursuing/building/experiencing a lifetime goal is actually reflected in the daily *C* • and/or $C \equiv L$: the lifetime goal itself is actually conducting a specific **daily life** enabling a certain daily *C*
	↘ **LIFETIME utility (*L*)**	When $L \neq \sum C$ possible strategies:	a) Focus on *L* sacrificing *C* b) Vice versa c) Find a middle way

giving their own contributions to personal and humankind advances. We call them the urban *culturalists*.

Both, urban materialists and culturalists, belonging to the *involuntary urbans* before-mentioned category, decide to trade-off a preferred life setting (natural, rural, village, town environments) for material, social and/or cultural aspirations. In this sense they "have to" live in *unwanted* physical and life style settings (cities) in order to achieve other *wanted* types of goals (material, social, cultural).

After these premises, we can now ask ourselves "what is there to decide whether a particular pleasure is worth purchasing at the cost of a particular pain, except the feelings and judgment of the experiences?" (Mill, 1863, p. 9): is it "more worthy" to sacrifice a peaceful picturesque rural-village life for materialist goals, or for cultural?

As long as they *quantitatively* produce the same amount of pleasures, for Bentham they are equivalently worthy, for Mill not. Benthamite utilitarianism does not invidiously compare *qualitatively* different types of pleasure. In his famous statement, Bentham indicates that "if the *quantity* of pleasure was the same, pushpin was as good as poetry" (Hunt & Lautzenheiser, 2015, p. 197) while for Mill some *types* of pleasure are more desirable and valuable than others: poetry would value more than pushpin; and he replies to Bentham with the equally famous quote that "it is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied" (Mill, 1863, p. 8). He then adds another fundamental point: if the pig or the fool is of a different opinion and think to be indeed happier than the dissatisfied human or Socrates, it is simply because "they only know their own side of the question. The other party of the comparison knows both sides" (Mill, 1863, p. 8). Thus, we might be tempted to judge as more worthy to sacrifice a preferred natural-rural-village life type for higher education enabling us to increase our pleasure of knowledge and by that perhaps to even give our contribution to humanity advances, rather than for getting more money to buy the most expensive car and fanciest clothes or higher social status to show up and socially induced materialistic-power ambitions. Bentham's utilitarianism considers (individual) *intensity* of pleasure, while Mill's utilitarianism (interpersonal) adds the fundamental concept of *kinds* of pleasure.

In favour of the "nobler" kind of pleasure (e.g. those motivating the urban culturalists) there is not just Mill's theoretical thought; findings (Easterlin, 2003) suggest that, contrarily to pecuniary domains, non-pecuniary domains might be less subject to hedonic adaptation. Scitovsky (1976) argues that comfort goods (car, house …) are more subject to hedonic adaptation than cultural goods (arts, music, literature …), condemning the urban materialists to an endless aspiration hamster wheel. People are presumed to be the best judges of their own interests, but if they regularly make decisions ignoring hedonic adaptation and social comparison effects, this presupposition is no longer valid and we cannot anymore assume that they are able to maximise their psychological well-being (Easterlin, 2003).

We saw that cultural goods are less victim to hedonic adaption: aspirations change less than one's circumstances change, therefore the actual subjective well-being increases. This is called less than complete adaptation and complements the set-point theory. Therefore, while the *urban materialists* might benefit from mostly an objective well-being increase, the *urban culturalists* might benefit *also* from a subjective well-being from the psychological profit linked to the less than complete adaptation effects associated with cultural goods and pure educational-knowledge pleasures.

The second term we underlined before in the above mentioned West's statement, "forgetting", embraces the omnipresent pros-cons balance we make – realizing it or not, rationally or not – every day in our minds for any decision. In the spatial domain decisions (e.g. deciding to live in a small village or a megacity) it refers to the spatial equilibrium we discussed in the previous paragraph. In the next paragraph, we will expose some reasoning concerning another way to look at the "forgetting the ugly and the bad" meaning coming into the game when we, rather unconsciously, are victims of the cognitive dissonance phenomena filtering and distorting our capacity to make use of objective information. We now end briefly by discussing the third term we emphasized in West's sentence: "think".

People indeed "think", in the sense that they *assume*, they *believe*, that all these wonderful things (money, creativity …) attract them to cities regardless of the negative aspects (crime, stress, congestion, pollution, lack of nature, ….). It is well-established[42] that effective forecasting is a task in which people do not outclass, and when they are already living in cities we saw how cognitive dissonance biases alter people's perception and proper use of available information.

[42] Kahneman, 2000; Gilbert et al., 1998; Kahneman & Schkade, 1999; Loewenstei & Schkade, 1999; Schkade & Kahneman, 1998.

3.3. Do we choose what we prefer, and do we prefer what is best for us?

A necessary query academics should face before exploring people's preferences (revealed – typical in standard economics – or stated – typical in psychology) is the following: "is the one that a person prefers necessarily the one that is better for her?" (Broome, 1991). We already saw how people are not always aware of the forces shaping their choices and not so successful in maximizing their own wellbeing by their decisions (Easterlin, 2003).

Even assuming a person fully operating within the self-interested condition, she is defined imprudent when she still fails to do what is best for herself (Broome, 1991), which appears to be an irrational behaviour – though we will see how this judgement depends from the temporal scale of view (immediate *versus* lifetime utility), and from the nature of "utility" intended (whether "positive feeling" or "greatest good" for the individual).

The notion of utility maximization in economics, as long-standing as economics itself, has recently faced a dramatic shift from the neoclassical approach where irrational behaviour was seen as *unsystematic* and therefore impossible to model, to the behavioural sciences approach suggesting instead a *systematic* irrationality (Dhami, 2016). Findings in behavioural economics show cognitive simplification processes (use of heuristic and biases when making decisions) from where generative principles can be extrapolated.

There are two main psychological information courses when we make decisions (Gilad et al., 1987):

1. What information we "allow" "in"
2. What we do with it once in

Cognitive dissonance (Festinger, 1957) is one of the labels embracing behavioural processes operating within point 1 which limits the information we actually "want" to see. At least three behavioural biases conduct to a less-than-full use of available information (Gilad et al., 1987):

I. prior hypothesis bias: prior beliefs (cities are very good for me) leading to snub disconfirming information (crime, pollution, noise, stress, no nature, no time, dirtiness, feeling unhappy);
II. adjustment and anchoring: early evaluations act as an anchor making subsequent adjustments too small;
III. escalating commitment: improper discounting of undesirable information (urban life is actually revealing to be bad for me) regarding a prior commitment (I believed/invested so much in moving to/staying in the city) to a course of action and the ensuing continuation or even escalation of that commitment (I cannot change life now, let's carry on, maybe it will become better or I will start liking urban life one day)

"Selective exposure" is a type of dissonance reduction which avoids dissonant information – by completely ignoring them or by discounting their value – while seeking for confirming ones.

Under spatial equilibrium decisions we consciously "forget" the ugly and the bad (I am aware of the ugly and the bad but still prefer to live there because of other advantages) while under cognitive dissonance biases we rather unconsciously "forget" about that (I "automatically" and partially unwarily discount/filter the ugly and the bad of urban life).

However, even the most *truly urban* and *urban believer* victim of cognitive dissonance biases might forget about the ugly and the bad … but up to a point. In fact, the dissonance function is not monotonically increasing but curvilinear (Frey, 1982) where dissonance information is filtered out at low levels of dissonance, while when the latter becomes too large the information blocked off reverses allowing to correctly revise the initial decision rationally in line with the objective external evidence.

Neoclassical theories assume that decision-makers instantaneously and fully realise any change in the exogenous parameters that in turn might determine a change in their behaviours; conversely, cognitive dissonance evidence made clear that this updating of exogenous parameter changes is imperfect (neither instantaneous nor full). It seems that only after a certain threshold (k) of discrepancy between expected utility, E_U, (city life is/will be great for me [or vice versa]) and actually experienced utility, A_U (after years living in cities I have to say that it is not actually that great [or vice versa]) the updating would take place and a new behaviour (living in cities or not?) emerges; k is a choice variable which is part of the utility function together with the traditional arguments ($U = f(\ldots., k)$) and is proportional to individual differences in personalities (Gilad et al., 1987). If we call S the level of surprise (in a negative sense) between expected and experienced utility ($S = E_U - A_U$), when $S > k$ the update of the information takes place.

Dissonance reduction, along with self-selection, would predict rather high subjective happiness in those who voluntarily decided to move to a certain place (e.g. cities); while treadmill effects would predict a return to their characteristic level of subjective happiness mostly predetermined from genes and personalities (Kahneman, 2000).

Coming back to our main question of this paragraph: do we choose/prefer what is actually best for us?

Kimball and Willis define the concepts of baseline mood (M) and elation (e) (Kimball & Willis, 2006): the baseline mood (M) is the level of "happiness" (H) which would prevail in the absence of surprises, while elation (e) is the contribution that surprises make on "happiness" (H), and the latter is the sum of them (H = M + e).

Elation is closer to the Morris' definition of happiness as an intense transient sensation (Morris, 2006) and is what Kimball and Willis consider as a noise acting as a distraction when people try to find out the right determinants for increasing their M, even though the latter is only one argument of the flow utility function.

M depends from genes (therefore out of individual control) but also from individual's choice in life, both long and short term choices such as related to factors like sleep, exercise, eating habits, social relations, friends, type of work, hobbies, which are at least partially under her own control. However, because of several biases already shown and because of the elation's noise (e.g. the as intense as it is ephemeral exciting feeling after buying/obtaining something new), people are often not aware of what might truly raise their baseline mood. This may perhaps have a role in explaining the Easterlin paradox (people are not *as* happier *as* they are richer) and the urban dwellers not as happier as they could be related to their non-urban dweller counterparts.

As Mill, one and half centuries ago wrote, "the individual who is presumed to be the best judge of his own interests may be incapable of judging for himself. […] the person most interested is not [always] the best judge of the matter, nor a competent judge at all" (Mill, 1874, Vol 3, p. 957).

3.4. Happiness, life satisfaction, short and long term utility

Often happiness, subjective wellbeing, utility, welfare and life satisfaction are promiscuously used generating confusion and fundamental mistakes.

The meaning of utility in plain English is *usefulness*. But, usefulness for what?

Bentham's idea that happiness is the determinant of behaviour is rooted in his famous note about mankind placed "under the governance of two sovereign masters, pain and pleasure. It is for them alone to point

out what we ought to do, as well as to determine what we shall do" (Bentham, 1789), and in his even more famous motto "the greatest happiness of the greatest number that is the measure of right and wrong" (Bentham, 1776) which probably was the English translation of the Italian Enlightenment thinker Cesare Beccaria's "Dei delitti e delle pene" (Beccaria, 1764) when in the introduction we read: "la massima felicità divisa al maggior numero" (the greatest happiness distributed to the greatest number).

The idea of Bentham's utility linked with the concept of happiness entered in economics with Jevons' Theory of Political Economy (Jevons, 1871), where he quoted his expression as "perfectly reflecting the meaning of utility in economics". Since then, the utilitarian social philosophy seeing all human activities strictly aiming to maximise pleasure (intended as utility), became the philosophical foundation of neoclassical economics in the second half of the nineteenth century.

Also Senior in his "An Outline of the Science of Political Economy" associates the term *utility* with *pleasure*: "of the […] qualities which […] give it value, the most striking is the power, direct or indirect, of producing pleasure […] *Utility* […] come nearest to [expressing this quality]" (Senior 1938, p. 6).

However, a better reading of Bentham reveals a slight but crucial variance in his meaning of utility: in his first definition, he wrote: "utility […] is that principle which approves or disapproves […] action […] according to the tendency […] to augment or diminish the happiness" where the latter is seen as a balance of pleasure over pain; but in his subsequent paragraph he provides a more comprehensive idea: "By utility is meant that property in any object, whereby it tends to produce benefit, advantage, pleasure, good, or happiness" (Bentham, 1789). Where if we read "or" as a disjunctive conjunction, it suggests that the notion of "benefit", "advantage", "pleasure", "good", "happiness" are not interchangeable. Bentham tempts to clarify it in a footnote which appeared in the second edition (1823) of the same book (An Introduction to the Principles of Morals and Legislation) in which he added: "The word *utility* does not so clearly point to the ideas of pleasure and pain as the words happiness and felicity do".

This opens the via to a separation of two clearly distinct concepts:

1. The greatest good for an individual;
2. The positive feeling felt from an individual.

We might prefer to use the first for the term *utility*[43] – as usually economists over the last century (excluding earlier traditions) did – and the second for the term *happiness* – as typically adopted by psychologists.

Economists seem to prefer using people's choices as reflections of their utility, while psychologists prefer to use people's felt experiences (feelings) as reflections of their happiness.

Whatever we decide to define and use for the terms utility and happiness, the type of reasoning we conduct depends on the temporal angle we consider: long or short term.

In economics lifetime utility is the individual's whole objective function including things subsequent to her death valued important by the individual; the extent to which she gets what she wants and has been revealed by her choices which often suggests a valuation of goods not traded in markets such as freedom, gratification, respect, unpolluted environment, lively community … or partially traded such as free time, health and longevity (Kimball & Willis, 2006).

Lifetime utility is sometimes interpreted as a discounted sum over time of flow utility which is somehow a similar notion, although in a different scale of thinking, to Kahneman's proposal to quantify individual welfare as a discounted sum of "instant utility" (Kahneman 1999), also called current effect (how positive our feelings are at a particular time). However, this interpretation is not entirely correct because it associates two different levels of utility which often run in parallel independent non-communicating paths, and at different "speeds". You may have a very quotidian happy life every single day of your life regarding daily habits (friends, sport, free time, relaxing life pace, …) and scenarios (bucolic environment, location with wonderful weather, frequent holiday trips …) but an unsatisfactory one if your life goal were to become a renowned professor or to win a Nobel Prize and you didn't achieve it … or vice versa: a very satisfactory life when seen as your own career achievements (you won the Nobel Prize at 81 years old) but at the price to live a poorly happy daily life (not much time for family, friends, sport, hobbies, stressful fast pace, unrelaxed mind, …), so that if you would calculate your global utility (lifetime utility) as the strict summary of your daily utility (current utility) in the first case you might obtain a much greater value than in the second, even though if you would calculate it by considering your lifetime career achievements, the result could be opposite. Unless a kind of anticipatory hedonic inertia (D'Acci, 2013) increases also your daily life current utility because of being aware that you are professionally-culturally growing and on the right path to achieve your lifetime utility goal; idem if your professionally-culturally daily growth is a source of joy and "happiness" on its own.

Excluding the fortunate case where daily actions repeated over the life "only" merely promoting current effectsperfectly match the farsighted lifetime utility too, people often have to make compromises between current effect and lifetime utility decisions, partially exemplified in the Cicada and the Ants fable and, from some aspects, the Hesse's Narcissus and Goldmund.

One's strategy may be to achieve lifetime utility (e.g. professional career) by sacrificing some kind of daily life pleasures (e.g. free time, rural life, quietness …), while another's strategy may be to achieve her own lifetime utility by setting up her daily life with plenty of current affect type pleasures; or a middle way (Tab le3).

Therefore, you might decide to live in a city, even if you don't like it, because it's the only way to get a higher education and professional career (long term utility), or you decide to live in a rural, village, town area to enjoy your own daily life moments in a peaceful lifestyle, without pollution, crime, congestion … but at the price of your professional satisfaction. Some are lucky enough to have their long term utility ambitions in line with their short term ones.

Probably in the medium-long term future the combination of advances in artificial intelligence, robots (Graetz & Michaels, 2018), telework (Chung & van der Lippe, 2020), falling working hours (Dolton, Howorth, & Abouaziza, 2016), hologram communication, transports, teleservices, and in the design and governance of cities and territories (D'Acci, 2019) will revolutionise our cultural-socio-economic systems and free us up when deciding the place to live,[44] not anymore under hard compromises (e.g. a better job and richer but in a high urbanicity context which one doesn't like) but only by following our true preferences: megacity, city, town, rural lifestyle.

When this will happen, based on current preferences seen, probably the world's urban dwellers would become only 1/3 (those preferring cities no matter what); or perhaps by that time we will design and manage our cities so nicely that they will become more attractive on their own and be chosen as the best place to live regardless of their better educational, professional, service opportunities, but because they will be a beautiful place to live.

We would live in cities not because we need but because we prefer.

[43] As Kimball & Willis, 2006.

[44] As Martinotti (1996, 1994, 1993) remind us, urban forms are linked with how different populations (aggregate of individuals with common traits) gravitate around metropolitan centres: inhabitants, workers, city users. Or as Geoffrey West (2011) says, that cities are just a physical manifestation of our interactions.

4. Conclusions

Scientists have known for a long time that "just as social isolation is well known to have harmful effects (Harlow et al., 1965), so does the opposite extreme: overcrowding can induce stress and illness in species ranging from insects to rodents (Calhoun, 1950) to primates, including humans (Hall, 1966)" (Kennedy & Adolphs, 2011, p. 452). An empirical proof that something psychologically "wrong" happens to humans in cities came from numerous researches showing links (often also causal by longitudinal studies) between urbanicity level and mental health as well as life satisfaction and subjective well-being. In line with these pieces of evidence, surveys about self-declared life satisfaction and stated preference toward the places to live indicate that only around 1/3 actually prefer urban environment. Despite it, more than half the world's population lives in cities and this proportion is predicted to become nearly 70% by 2050.

There are several reasons why people still decide to live in cities; among them, we discussed a few types of utilities that individuals could get from city life and concluded that someone might prefer to sacrifice her preferred environment (and linked "happiness") in order to achieve other types of advantages such as social mobility, money, culture, and professional satisfaction. "Happiness" should be seen as part of the utility function rather than the function itself, and traded-off against other arguments of the utility function such as virtues, talents' realization, cultural-knowledge development, career, money, services, social status.

Definitions of happiness, utility, satisfaction, are required to properly reason about people's life strategies and decisions. We distinguished lifetime utility and current utility, as well as the "greatest good" and "positive feeling felt" and discussed the implication in one's compromises/sacrifices among her utility function's arguments.

In future, technological changes such as artificial intelligence, robots, hologram communication, telework, teleservices, hyperloops and sky trains, plus new (consequent) urban-territorial design, will radically transform our socio-economic system freeing us up to truly decide to live where we *prefer* rather than where we *need*. We will not need anymore to trade-off part of our daily happiness by living in undesired environments/lifestyles in order to achieve other lifetime utility goals, express our talent and develop virtues: "society is […] likely to flourish to a greater extent with happy citizens than with unhappy ones" (Veenhoven, 1988, p. 351).

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