

Happy Colombia, Unhappy Bogota (urban-rural happiness gradient in Colombia)

Abstract:

The exploration of life satisfaction across urban-rural gradients has become increasingly important in understanding the nuanced relationship between well-being and geographical settings. Yet many Latin American countries have not received dedicated attention yet. We use the 1998, 2012, and 2018 Colombian World Values Survey to study urban-rural happiness gradient, where happiness rises from the lowest in large cities to highest in rurality. This is a first such study in Colombia using a proper dataset with adequate urbanism measures and controlling for SWB predictors. This is the first such study in Colombia. According to economic theories of urban-rural happiness, the Global South cities including Colombian cities are expected to promote more happiness compared to rural areas since cities are the locus of economic activities and offer plenty of opportunities (e.g., jobs and education). We find weak evidence to the contrary. The effect size of the happiness urban penalty is weak -0.25 for cities > 500k, and large -0.4 to -0.9 for Bogota on 1-10 happiness scale. Results are correlational as in any non-(quasi-)experimental study.

Keywords: urban-rural happiness gradient, urban, cities, happiness, life satisfaction, Subjective WellBeing (SWB), Colombia, Bogota

"With urbanization has come disharmony" The Dalai Lama.

Subjective WellBeing (SWB) and Urbanism

The interest in SWB¹ has been increasing over the last few decades and gaining credence among academics and policymakers. SWB measures are increasingly proposed as valuable complements to traditional objective indicators of societal progress (Diener et al., 2013; Diener et al., 2009; Di Tella & MacCulloch, 2006; Helliwell, 2006; Stiglitz et al., 2009). This is due to their demonstrated validity, reliability, and sensitivity to changes in living conditions (Diener, 1994; Diener et al., 2009; Diener et al., 2013; Veenhoven, 1996). Notably, economists, who were initially skeptical of SWB measures compared to objective indicators like income or consumption, are now widely adopting them (e.g., Easterlin et al., 2011; Knight & Gunatilaka, 2010; Piper, 2015).

¹ Subjective Wellbeing (SWB), happiness, wellbeing, and life satisfaction are used interchangeably. Technically, we mean evaluative/cognitive life satisfaction as opposed to affective happiness, positive and negative affects/emotions, or Eudaimonia/flourishing/functioning. Accordingly in the empirical part we use evaluative/cognitive life satisfaction.

1 This ~~booming~~ ~~burgeoning~~ SWB literature is mostly empirical in nature and concerned with the
 2 exploration of– determinants of SWB (e.g., see Blanchflower & Oswald, 2011; Dolan et al., 2008). The
 3 focus has been directed to people's social and economic circumstances including income, education,
 4 social class, personal health and trust (Helliwell & Putnam, 2004). Among the many correlates of SWB
 5 explored in the literature, the relation between income and SWB is widely debated:– does money buy
 6 happiness? Income also pertains to the question of this study: how is urban-rural happiness gradient
 7 mediated by economic development?

8 There is a debate whether it is the absolute or relative income (i.e., relative position compared to
 9 others or ~~to~~ the past) that matters for SWB (Diener et al., 1995; Dolan et al., 2008). Easterlin– argued that
 10 income predicts happiness in a cross section, but not over time, i.e., “the Easterlin paradox” (Easterlin,
 11 1974). What matters for people's happiness is their income relative to others and not the absolute amount
 12 they make; the upward shift in standards and hence aspirations offset the expected positive effect of
 13 income growth on SWB (Easterlin, 1974). The Easterlin paradox of rising growth and nonincreasing
 14 happiness is also explained by the adaptation of people to their changes in incomes (Easterlin 1974; Di
 15 Tella & MacCulloch, 2006).

16 Another perspective is that the relation between income and SWB is curvilinear: income matters
 17 more for SWB at lower levels of wealth and its significance decreases at higher levels of wealth
 18 (Veenhoven, 1991). Because wealth and income are important for SWB at lower levels of economic
 19 development, cities in developing countries (much wealthier than rural areas) would be enjoying a SWB
 20 premium compared to rural and township contexts (Veenhoven, 1994, 1995).

21 Cities have been the nucleus of modern life where increasingly the world population lives and the
 22 world's stock of goods and services is produced and consumed. Cities have a number of advantages,
 23 especially– economically, but also have disadvantages especially with regard to their social and
 24 psychological effects. The main economic advantages of cities are agglomeration and scale economies.
 25 Cities made labor specialization possible by housing millions of people and this concentration made the
 26 provision of services and amenities feasible and economical (Glaeser, 2011). Cities have facilitated the
 27 exchanges of goods, services and ideas (Glaeser, 2011). Cities have always been considered engines of
 28 economic growth and innovation (Cohen, 2006; Glaeser, 2011; Sampson, 2019). Cities provide an
 29 abundance of choices, options, and opportunities to individuals, e.g.: education, jobs, and freedom from
 30 traditional social ties and privacy and exclusive styles of life that are not found in rural areas (Jacobs,
 31 1961; Milgram, 1970; Park et al., [1925] 1984).

32 But as classical urban sociological theory argues, cities are sites of many social and personal ills
 33 including crime, corruption, personal and social disorganization, suicide, and corruption (e.g., Simmel,
 34 [1903] 2013; Tönnies ([1887] 2001; Wirth, 1938). Notably, city life overloads the psychic capacity of
 35 urbanites in an unmanageable way (Milgram, 1970, Simmel, [1903] 2013), including a higher prevalence
 36 of poor mental health in city dwellers (Ventriglio et al., 2021).

37 The effect of urbanism on SWB is not clear and might be more nuanced than expected. For
 38 instance, the price paid by urbanites for the economic opportunities could be their relative unhappiness,
 39 especially in the developed countries (e.g., Sørensen, 2014; Okulicz-Kozaryn & Mazelis, 2018),– what
 40 Fischer (1973:233) has called “the emotional price for their economic well-being.”

1 The net effect of city life on SWB tends to be negative [across the world](#) (Okulicz-Kozaryn and
2 Valente, 2021; [Sørensen, 2014](#); [Lenzi & Perucca 2022](#)). But is this the case in all countries? Is there a
3 one happiness-urbanization nexus?

4 The relationship is argued to be mediated through the level of economic development. In
5 developed countries, the argument is that since there is no large difference in living conditions between
6 cities and rural areas, there could be a SWB penalty of city life. On the other hand, in less developed
7 countries, cities may be associated with higher SWB due to better living conditions and opportunities
8 when compared to rural areas. This hypothesis has been investigated in a number of cross-country
9 studies that included samples of both developed and less developed countries (e.g., Easterlin et al., 2011;
10 Requena, 2016; [Tassinari, 2015](#)).

11 ~~And~~ The urban-rural happiness gradient has been investigated in numerous country case
12 studies. For instance, in the developed world, city life has been found to be associated with lower SWB
13 compared to rural areas in the US (~~Berry & Okulicz-Kozaryn, 2009, 2011~~; Okulicz-Kozaryn & Mazelis,
14 2018; Sander, 2011), United Kingdom (Dunlop et al., 2016), New Zealand (Morrison, 2007, 2011), Italy
15 (Lenzi & Perucca, 2019), and Denmark (Sørensen, 2021). But compared to this extensive research ~~in the~~
16 ~~developed world~~ [for various developed countries](#), there ~~is a dearth of~~ [is less evidence on](#) the urban-rural
17 happiness gradient in the less developed countries. [While there is research in some developing](#)
18 [countries, notably China \(e.g., Chen et al., 2015 and Knight & Gunatilaka, 2010\), there is little research in](#)
19 [Latin America. Most happiness studies, including those investigating urban-rural happiness differential,](#)
20 [are in the global North, and the field is still only emerging in Latin America \(Rojas, 2015, 2019; Martinez &](#)
21 [Short, 2020\). We elaborate in the following sections.](#)

22 ~~Hence, this study provides a contribution to this line of research.~~

23 SWB and Urbanism in Latin America

24

25 Latin America is one of the most urbanized regions in the world at about 80% urban (out of 662 million)
26 (CEPAL, 2022). Latin cities are the engines of economic growth, opportunity and power centers, and
27 migration hubs. Yet they are also full of contrasts of inclusion and exclusion, fragmentation, and
28 segregation. Urban poverty and extreme wealth coexist, feeding one of the most endemic problems in the
29 region: inequality (Acosta-Maldonado, 2022). Latin America is the most unequal region in the world,
30 above Sub-Saharan Africa (CEPAL, 2018). The high inequality in the region hinders many social and
31 economic development [benefits](#) promoted through urbanization. Cities are central to the policy debate
32 and economic development in the region. In Latin America, there are over 17,000 municipalities, but two
33 thirds of the urban population lives in 11% of cities in the region (IDB, 2024). Mega cities like Mexico City,
34 Santiago de Chile, Buenos Aires or Bogota, drive the countries' economy. ~~But~~ [there is scarce](#)
35 [knowledge of the implications of living in such large cities for the well-being of their residents. The present](#)
36 [study aims to fill this gap.](#)

1

2 Colombia is the third largest country in the region, one of the most unequal (Gasparini and
 3 Cruces, 2021) and urbanized with 3 out of 4 Colombians living in urban areas (Instituto de Estudios
 4 Urbanos, 2022). Colombia is known for one of the longest civil conflicts in the world, the complex
 5 problems of drug trafficking, and the large displaced population, over 8 millions, primarily in rural areas
 6 (International Crisis Group, 2021). With all these socio-economic complexities, Colombia is a fertile
 7 ground for happiness research. Colombia ranks as one of the happiest countries in the world despite
 8 having low to moderate economic development, much poverty and inequality (Okulicz-Kozaryn, 2023). At
 9 the same time, there are very few studies focusing on Colombian happiness. Most happiness studies,
 10 including those investigating urban-rural happiness differential, are in the global North, and the field is still
 11 only emerging in Latin America (Rojas, 2015, 2019; Martinez & Short, 2020).

12 Carol Graham was an early student of Latin happiness, yet her studies are in general about the
 13 continent, they do not focus on Colombia (Graham, 2015; Graham & Felton, 2006; Graham & Pettinato
 14 2002, 2001). Krauss and Graham (2013) is an exception, but it focuses on the relationship between
 15 Subjective wellbeing (SWB) and labor market, not urbanism.

16 Switek (2012) was an early analysis of the urban rural happiness gradient in Latin America, it
 17 usefully separates regressions by the country, but unfortunately lumps together urbanicity at >100k, while
 18 a higher threshold at several hundred thousand is needed (Okulicz-Kozaryn, 2016). Valente and Berry
 19 (2016) also usefully separates by country and uses more cutoffs than Switek (2012) but doesn't focus on
 20 or discuss the Colombian case specifically. The latest study to focus on Latin America, Jantsch & Piper
 21 (2025) doesn't separate the analyses by country (except descriptive statistics in appendix).

22 The cross national studies focusing on urban-rural happiness that include Colombia among other
 23 countries (Switek, 2012; Valente & Berry, 2016; Jantsch & Piper, 2025) do not focus on Colombia and do
 24 not discuss Colombian urbanism. Extant literature does not address Colombian intricacies. Hence, we
 25 know little about Colombia specifically from these comparative studies, or about any other Latin country
 26 for that matter. In fact, to our knowledge, there is only one study that focuses on urban-rural happiness in
 27 a specific country in Latin America (Peru): Guillen-Royo & Velazco (2012). ~~There are cross-national~~
 28 ~~studies focusing on urban-rural happiness that include Colombia among other countries (e.g.,~~
 29 ~~Okulicz-Kozaryn & Valente, 2021; Valente & Berry, 2016), but they do not focus on Colombia and do not~~
 30 ~~discuss Colombian urbanism. Extant literature does not address Colombian intricacies.~~

31

32 SWB and Urbanism in Colombia

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34 Case selection—why study urban-rural happiness gradient in Colombia? We may be biased in favor of
 35 Colombia (half of the authors live in Colombia), but we think the Colombian case is deserving of
 36 dedicated study.

37 Colombia is very unequal (Gasparini and Cruces, 2021) known for long civil conflict, drug
 38 trafficking, and the large displaced population, over 8 millions, primarily in rural areas (International Crisis

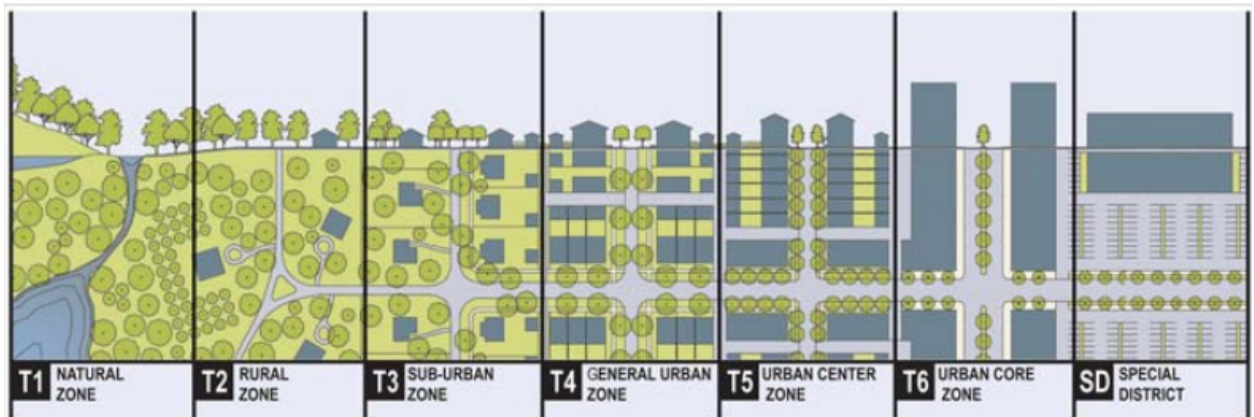
1 Group, 2021). Still, Colombia is one of the happiest countries in the world (Okulicz-Kozaryn, 2023). With
 2 all these socio-economic complexities, Colombia is a fertile ground for happiness research. Specifically, in
 3 terms of demographics and urbanization as per present study, Colombia is the third largest country in
 4 Latin America, a home to a megacity, Bogota, several large cities, and plenty of smaller places including
 5 small towns, villages, and open country.

6

7 There are 2 happiness studies focusing on Colombia in "Handbook of Happiness Research in
 8 Latin America:" Hurtado (2016) and Velasquez (2016), but they do not address the urban-rural happiness
 9 question.

10 Burger et al. (2021) ~~is an exception~~ seem to attempt to analyze urban-rural happiness gradient in
 11 Colombia, but ~~it uses questionable Gallup data (see discussion in Okulicz-Kozaryn & Valente, 2021);~~
 12 ~~hence, we leave it out.~~ use a completely inadequate urbanicity measure: just one dummy "lives in rural
 13 area." Urban-rural gradient, as the name indicates, is a gradient, there are steps to it—it is not a binary.
 14 There are fundamental differences across urbanicity spectrum. At a very minimum, there are several
 15 categories.

16 Wilderness and open country such as much of Amazonas and Putumayo are different from
 17 villages or a very small towns such as Colon Putumayo or Iles Narino—there are no paved roads and
 18 human-made amenities. Towns and small cities such as Ipiales or Pasto Narino are different still—there is
 19 a regional airport, more specialized amenities such as regional hospital and university and several-story
 20 built environment. Large cities and metropolises such as Medellin or Bogota are different again—large
 21 international airports, very specialized amenities and multi-story built environment. The built environment
 22 varies dramatically across urbanicity. Sprawling hundreds of square kilometers with towers, subway, and
 23 large airport metropolis versus walkable from-end-to-end several square kilometers with buildings mostly
 24 two or three stories town versus open country and wilderness. Way of life varies dramatically, too: from
 25 stressed, impersonal, and anonymous in a metropolis to increasingly slow paced and personal in smaller
 26 areas. This is the bare minimum—3 or 4 carefully chosen categories. Ideally, there are multiple categories
 27 as visualized in figure 1 with so called Rural-Urban Transects (https://transect.org/img_lib2.html).



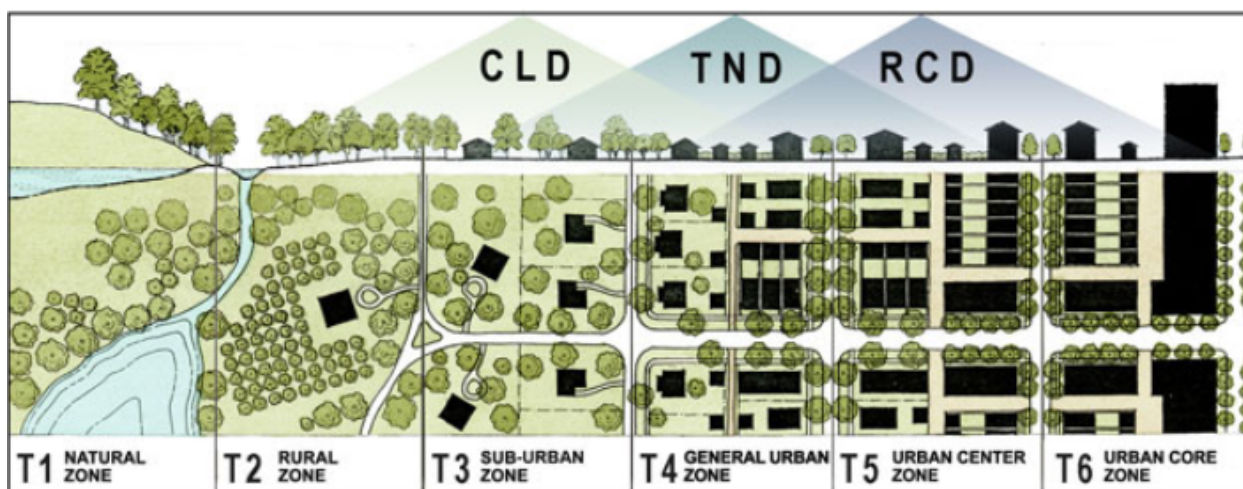


Figure 1. Rural-Urban Transects (https://transect.org/img_lib2.html).

Related, the effect of urbanicity on SWB is not constant—there is a threshold effect at several hundred thousand (Okulicz-Kozaryn, 2016)—another reason to use multiple urbanicity categories. Last but not least, Gallup data used in Burger et al. (2021) is questionable. The Gallup urbanicity measure is 4 fuzzy categories such as “rural area” subjectively self-reported by respondent versus 8 precise numerical objective categories assigned by interviewer or fieldwork supervisor in WVS data used here (for elaboration see Okulicz-Kozaryn & Valente, 2021).

A large effort to analyse Colombian urban-rural happiness gradient is a recent policy report (PNUD, 2023). in the country has analyzed differences in SWB by rural and urban areas finding negligible differences (PNUD, 2023). However, these urban-rural SWB differentials need to be adjusted with SWB predictors as done in academic literature and this study.

Before we transition to the next section of the paper, it is useful to finish the literature review with theoretical predictions regarding urban-rural happiness gradient in Colombia.

Poorer countries have lower urban SWB penalty than developed countries (Okulicz-Kozaryn & Valente, 2021) or even urban SWB premium as in poorest African countries (Glaeser 2011). Accordingly, cities in Colombia, a developing country, are expected to have low happiness penalty, be no different, or even happier than rural areas.

On one hand, as in the developed countries (Okulicz-Kozaryn and Valente 2021 e.g., Sørensen, 2014), there may be a happiness penalty for the very largest Colombian cities such as Bogota, and perhaps Medellin and Cali, the 2nd and the 3rd largest. On the other hand, cities promote economic growth (O’Sullivan 2009, Glaeser 2011), and economic growth matters more at low levels of development as visualized in figure 12—then cities may generate happiness in Colombia when compared to rural areas. Thus, the net effect of urban life in Colombia could be positive. This is contrary to the experience in developed countries where the cost of the opportunities provided in cities is the relative unhappiness of city dwellers compared to ruralities—the net effect of city life in such a context is usually negative. Also,

1 living conditions between urban centers and rural and township areas in the developed countries do not
 2 show the stark differences found in less developed countries, i.e., there is no striking development urban
 3 bias. Hence, the happiness premium of city life does not exist or is negative in developed countries.

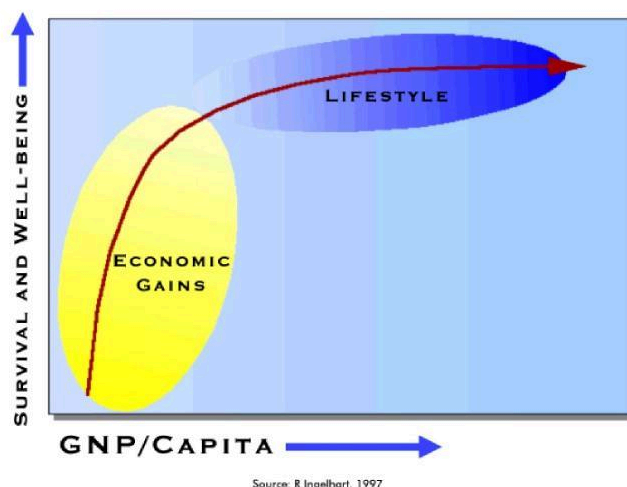


Figure 42: Well-being and income, (Inglehart 1997).

22 There is evidence of a significant development urban bias in Colombia. Per Capita Gross Domestic
 23 Product (PCGDP) (PPP, USD) varies across Colombian regions considerably, for instance, very urban
 24 Bogota and moderately urban Santander are >20k, while very rural Amazonas and rural Choco are
 25 <7k—three-fold difference (see online appendix for details). Economic development is concentrated in
 26 large urban centers in the country—a characteristic shared among many developing countries, and hence
 27 people move to those cities in search for jobs and other life opportunities that they cannot find in their
 28 rural areas or small towns (Cohen, 2004, 2006). So perhaps livability or quality of life (QOL) in the poor
 29 rural regions of Colombia is not enough to provide an environment for high happiness (while QOL is good
 30 enough in rural areas of developed industrialized countries).

36 Urbanism in Colombia

Colombia is a large country at about 52m, third largest Latin country (after Brazil and Mexico) and urbanized as much as the US at about 80 percent. Colombia's urbanization trajectory follows overall Latin American pattern, except that it started more rural in 1950 at about 33% (Latin America at 40%), by 1975 both at 60%, in 2000 about 75%, and projected about 90% by 2050 (population.un.org/wup/Country-Profiles). Yet the United Nations (UN) or World Bank (WB) definition of urban is at a very low cut-off. If we define urban as medium and large cities >0.5m, only about 25m out of about 50m Colombian population live there, i.e., about half. In that sense UN/WB definition overestimates urbanization.

Urbanization data provided by international organizations such as the UN or WB use the urban-rural definition adopted in each national context. Different countries use different urban-rural definitions, hence what is considered urban in one country may be considered rural in another one. For instance, the rural-urban definition can be based on the administrative role of the settlement and not the population number and hence there can be settlements that exceed 10,000 and are still considered villages and not small towns as it is the case in Egypt (Bayat & Denis, 2000; Zinkina & Korotayev, 2013). Countries in the global South use different population thresholds for the rural-urban classification. For instance, the urban threshold in Benin is 10,000 people compared to 2,000 in Ethiopia or Argentina (Cohen, 2006). This makes the cross-country comparisons of urbanization challenging (Cohen, 2004, 2006). Accordingly, urbanization should be treated not as a dichotomy but as a continuum with different degrees of urbanization (Cohen, 2006; Davis, 2004; Smit, 2021). Metropolis of 1m is very different from a city of 250k, and a town of 25k is different again. The built environment varies dramatically. Sprawling hundreds of square kilometers with towers, subway, and large airport metropolis versus walkable from end-to-end several square kilometers with buildings mostly two or three stories town. Way of life varies dramatically, too: from stressed, impersonal, and anonymous in a metropolis to slow-paced and personal in a town.

It is often the case in developing countries that urbanization and economic activities are concentrated within a few large urban centers (Cohen, 2006). Hence, the study of urbanization in such a context requires more emphasis on the role of those primate cities that usually dominate over the economic and urbanization trajectories in those countries (Cohen, 2006). It could be easily argued that Colombia is characterized by the existence of a few (or even just one Bogota) primate cities where economic development and the majority of urban population are concentrated.

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31 Urbanism in Colombia

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In our Colombia-focused case study we delve deeper into Colombia's urbanism. Colombia is a large country at about 52m, third largest Latin country (after Brazil and Mexico) and urbanized as much as the US at about 80 percent. Colombia's urbanization trajectory follows overall Latin American pattern, except that it started more rural in 1950 at about 33% (Latin America at 40%), by 1975 both at 60%, in 2000 about 75%, and projected about 90% by 2050 (population.un.org/wup/Country-Profiles). Yet the United

1 Nations (UN) or World Bank (WB) definition of urban is at a very low cut-off. If we define urban as medium
 2 and large cities >0.5m, only about 25m out of about 50m Colombian population live there, i.e., about half.
 3 In that sense UN/WB definition overestimates urbanization.²

4 Colombia's urbanism is dominated by its capital city Bogota, and 2nd and 3rd largest Medellin
 5 and Cali. While Cali and Bogota were founded in the mid 1500s and Medellin in the early 1600s—the three
 6 greatest Colombian multi million metropolises of today were just small towns a few generations ago.
 7 Bogota was only 30k in 1851 and 117k in 1912 (Sowell 2012), Medellin was 60k in 1905 (Alcaldía de
 8 Medellín 2014) and Cali was 88k in 1938 (Davila 2001). In the early 1900s, there was no large city
 9 (>500k) in Colombia—urbanism is a new development. This mind-boggling growth of Colombian cities is
 10 amidst a very mountainous landscape of the country—Colombia has been indeed fractionalized to some
 11 degree by mountains with slow and narrow roads between the cities. According to the World Economic
 12 Forum, Colombian roads are in poor condition ranking at 110/137 in the world (Schwab 2018). Colombian
 13 metropolitan areas themselves are fractionalized and encircled by mountains, too (albeit to a lesser
 14 degree than the country's regions), still they grow.

15 Ten largest Colombian cities are listed in table 1—Bogota is a category of its own, while similar in
 16 density to other large cities, it is about 3x larger than 2nd Medellin and 3rd Cali, which would be another
 17 category of its own again, about 2x larger than 4th Barranquilla. Bogota has low accessibility to
 18 employment opportunities for over 80% of the most disadvantaged population groups (Guzman &
 19 Bocarejo, 2017), making it a spatially unequal city. Traffic is one of the most congested in the world at 2
 20 km per hour at peak times (BBC, 2022), and its airport serves about 35m passengers a year, more than
 21 2x second Medellin at 13m, and 4x third Cali at 7m (Aeronáutica civil de Colombia 2020). For a
 22 discussion of density and character of Colombian cities see online appendix. We will focus in our study on
 23 cities larger than about .5m as listed in table 1.

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rank	city	population (millions)	density (thousands per sq km)	built-up area per cap (sq m)
1	Bogota	7.8	4.8	40
2	Medellin	2.6	6.6	39
3	Cali	2.3	4.1	45
4	Barranquilla	1.3	7.8	60
5	Cartagena	1	1.8	45
6	Cucuta	.8	1	76
7	Soacha	.8	4.2	38
8	Soledad	.7	1	34
9	Bucaramanga	.6	4	51
10	Ibague	.5	.4	55

28 Table 1: 10 largest Colombian Cities (.5m-8m; note: there are several other cities of about .5m that are not listed).

29 Data sources: population and density: latest available year, 2002-2021

² Urbanization data provided by international organizations such as the UN or WB use the urban-rural definition adopted in each nation. The definition
 30 can be based on the administrative role of the settlement and not the population—there can be settlements that exceed 10,000 and are still considered
 31 villages and not small towns as is the case in Egypt (Bayat & Denis, 2000; Zinkina & Korotayev, 2013). Countries use different definitions. For instance,
 32 in Benin urban is >10k v 2k in Ethiopia or Argentina (Cohen, 2006). Accordingly, urbanization should be treated not as a dichotomy but as a continuum
 33 with degrees of urbanization (Cohen, 2006; Davis, 2004; Smit, 2021).

1 <https://unstats.un.org/unsd/demographic-social/products/dyb/dybsets/2021.pdf>; built-up area per cap: 2015

2 <https://data.unhabitat.org/datasets/GUO-UN-Habitat::11-3-1-land-consumption-rates-in-colombia/about>

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5 Data and Methods

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7 We use the World Values Survey (WVS) freely available from worldvaluessurvey.org, which is better
8 suited for the study of urban rural gradients than Gallup data (~~see discussion in Okulicz-Kozaryn &~~
9 ~~Valente, 2021~~). We use 1998, 2012, and 2018 waves for Colombia only. Each wave is a representative
10 national sample of Colombia. WVS surveys all residents (not only citizens) between the ages of 18 and
11 85. Data collection is a face-to-face interview at the respondent's home / place of residence.

12 The variables are listed in table 2. Additional descriptive statistics are in the online appendix.
13 SWB question reads "All things considered, how satisfied are you with your life as a whole these days?
14 Using this card on which 1 means you are "completely dissatisfied" and 10 means you are "completely
15 satisfied" where would you put your satisfaction with your life as a whole?"

16 Urbanicity measure (variable X049) is an objective measure of urbanization—according to the survey
17 documentation, this variable is coded by the interviewer herself or the fieldwork supervisor and must
18 reflect actual objective information. This is different from other surveys, such as Gallup, in which the
19 urbanization measure is self-reported by the respondent (see Weckroth & Kemppainen, 2021). There are
20 eight categories ranging from <2k to >500k. Again, it is more precise to treat urbanicity as a gradient, not
21 a binary (i.e., urban versus rural) and the WVS measure of urbanicity allows such treatment. Due to small
22 cell sizes we collapse the bottom three categories <2k, 2-5k, and 5-10k into <10k, and again we will
23 mainly focus on the top category >500k, but also second top 100-500k. Other categories between <10k
24 base case and 100-500k are places-in-between, between nature and city.

25 Another urbanicity measure is "settlement type where the interview was conducted," which also like
26 the above primary urbanicity measure is coded by the interviewer. Settlement type is only available for the
27 2018 wave and takes on 3 values: Capital city [i.e., Bogota], Regional center, and base case: District
28 center. The instruction (F00010738-WVS-7_Master_Questionnaire_2017-2020_English) to the reviewer
29 reads: "H. Code settlement type where interview was conducted: 1. Capital city (national capital) 2.
30 Regional center (capital/ center/ seat of the region) 3. District center 4. Another city, town (not a national,
31 regional or district center) 5. Village" (In Colombian WVS there are no categories 4 and 5).
32 Counterintuitively, the district center can be very small, even <10k as shown in table 2. ~~This is another~~
33 ~~contribution of this paper to use this variable. To our knowledge, this is the first study using district,~~
34 ~~regional, and national centers to study urban-rural happiness gradient.~~

35 This is another contribution of this paper to use the settlement variable. To our knowledge, this is the
36 first study using district, regional, and national centers to study urban-rural happiness gradient.

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39 Table 2: crosstab between place size and settlement type.

Settlement type where interview was conducted

place size	Capital	Regional	District	Total
<10k	0	0	192	192
10-20k	0	0	112	112
20-50k	0	0	176	176
50-100k	0	18	192	210
100-500k	0	192	144	336
>500k-	272	222	0	494
Total	272	432	816	1,520

~~Table 2: crosstab between place size and settlement type.~~

Table 3: Control variable definitions.

Name	Description
Age	age
Age2	age squared
Male	male
Married or living together as married	"Are you currently 1 'Married' 2 'Living together as married' 3 'Divorced' 4 'Separated' 5 'Widowed' 6 'Single/Never married' 7 'Divorced, Separated or Widow' 8 'Living apart but steady relation (married,cohabitation)'"
Divorced/separated/widowed	"Are you currently 1 'Married' 2 'Living together as married' 3 'Divorced' 4 'Separated' 5 'Widowed' 6 'Single/Never married' 7 'Divorced, Separated or Widow' 8 'Living apart but steady relation (married,cohabitation)'"
Health	"State of health (subjective)"
Class	"Social class (subjective)"
Education	"Highest educational level attained"
Income	"Scale of incomes"
Employment status	"Are you employed now or not? IF YES: About how many hours a week? If more than one job: only for the main job 1 'Full time' 2 'Part time' 3 'Self employed' 4 'Retired' 5 'Housewife' 6 'Students' 7 'Unemployed' 8 'Other'"
Religious services	"Apart from weddings, funerals and christenings, about how often do you attend religious services these days?"
Religious denominations - major groups	"Religious denomination WVS: Do you belong to a religious denomination? In case you do, answer which one. EVS: Which one?"
Trust	"Most people can be trusted"

We use a usual set of control variables following Okulicz-Kozaryn and Valente (2021) as listed in table 3. There are several controls worth discussing. Trust is a key predictor of SWB (Putnam 2000), and is lower in cities (Milgram 1970). Trust may suffer from increased urban crime (crime variables for Colombian WVS have mostly missing observations.) Still one can argue that increased crime indeed is a city property, an inherent feature, and not a separate characteristic—it increases with city size—double the population, and per capita crime goes up by 15% (Bettencourt, 2013; Bettencourt et al., 2010; Bettencourt & West, 2010; Bettencourt et al., 2007). Trust is likely to be highly correlated with and lowered by crime (e.g., Wike 2008). Income, class, and education are important controls—they not only predict greater SWB, but are also confounded and higher in cities (Carlsen & Leknes, 2019, 2022). Young, single and well-educated persons report relatively higher life satisfaction in cities than in non-city areas, whereas the opposite is the case for the unemployed (Carlsen & Leknes, 2025).

We use a standard Ordinary Least Squares (OLS) regression with robust standard errors. We treat the 10-step happiness variable as continuous. Ordinal happiness can be treated as a continuous variable

1 (Ferrer-i-Carbonell & Frijters, 2004). OLS has become the default method in happiness research
 2 (Blanchflower & Oswald, 2011). Theoretically, while there is still debate about the cardinality of SWB,
 3 there are strong arguments to treat it as a cardinal variable (Ng, 1996, 1997).

4

5

6 Results for cities > 500k

7

8 As mentioned earlier in table 1 there are several cities larger than 500k in Colombia. Results are set
 9 in table 4. In bivariate model a1, there is no difference across urbanicity--an expected result--the
 10 gradient only arises controlling for socio-demographics, e.g., income, education, and social class are
 11 confounded with urbanicity (Okulicz-Kozaryn & Valente, 2021). Not controlling for SWB predictors
 12 (and/or using Gallup data) may even lead one to an erroneous conclusion that in general people are
 13 happier in cities.³

14

	a1	a2	a3	a4	a5	a6	a7
<10k base case							
10-20k	-0.16	-0.06	-0.09	-0.08	-0.08	-0.08	-0.03
20-50k	0.01	0.03	0	0.01	0	0	0.01
50-100k	0	-0.02	-0.05	-0.04	-0.04	-0.04	-0.02
100-500k	-0.04	-0.09	-0.17	-0.17	-0.16	-0.17	-0.12
>500k-	-0.05	-0.15	-0.25+	-0.25+	-0.23+	-0.23+	-0.13
age		0.01	0.01	0.01	0.01	0.01	0.01
age2		0	0	0	0	0	0
male		-0.11*	-0.12**	-0.12*	-0.03	-0.04	-0.04
married or living together as married		0.22***	0.23***	0.23***	0.20**	0.20**	0.19**
divorced/separated/widowed		-0.02	-0.02	-0.01	-0.03	-0.03	-0.03
health		0.60***	0.57***	0.56***	0.55***	0.55***	0.54***
income			0.06***	0.06***	0.06***	0.06***	0.06***
class				0.04	0.04	0.03	0.03
religious services					0.02	0.02	0.02
trust						0	-0.01
constant	8.45***	5.71***	5.62***	5.51***	5.42***	5.43***	5.59***
year dummies	yes	yes	yes	yes	yes	yes	yes
religious denomination dummies	no	no	no	no	yes	yes	yes
employment status dummies	no	no	no	no	yes	yes	yes
regional dummies	no	no	no	no	no	no	yes
N	6025	6021	5997	5957	5936	5915	5915

³ For a recent example see <https://news.gallup.com/opinion/gallup/315857/degree-urbanisation-effect-happiness.aspx>, and for a whole erroneous book
 15 see Glaeser (2011)--for discussion see Okulicz-Kozaryn & Valente, 2021--only in the very poorest countries, such as those in Sub-Saharan Africa,
 16 where income is badly needed for necessities, cities may be necessary to satisfy human needs.

17

--	--	--	--	--	--	--	--

+0.10, *0.05, **0.01, ***0.001, robust std err

Table 4: OLS regressions of life satisfaction.

The addition of basic sociodemographic variables in a2 increases the negative effect of cities, but results still remain insignificant. Addition of income in a3 is enough to produce marginally significant results. Addition of class in a4 doesn't change the results. Model a5 oversaturated with extra controls for religiosity and employment does not change the results much relative to a4.

Model a6 adds trust, which is often lower in cities, and also may suffer from increased urban crime (crime variables for Colombian WVS have mostly missing observations.) Still one can argue that increased crime indeed is a city property, an inherent feature, and not a separate characteristic—it increases with city size—double the population, and per capita crime goes up by 15% (Bettencourt, 2013; Bettencourt et al., 2010; Bettencourt & West, 2010; Bettencourt et al., 2007). Trust is likely to be highly correlated with and lowered by crime (e.g., Wike 2008). Still results remain similar, and only addition of regional dummies in a7 kills the significance on >500k dummy, which points to regional differences explored in next section.

Overall, there is weak evidence of urban-rural happiness gradient as indicated by coefficients on ">500k-" that are only marginally statistically significant (.1 level) and moderate in effect size (about .25).

Results for Regional centers and Bogota: Unhappy Bogota

The base category, <10k, proxies free of city natural environment most closely resembling human natural habitat where humans have evolved, and it includes: wilderness, open country, and small villages. The >500k category is large cities, a critical category that must be measured based on earlier review of theory. There is likely to be a threshold at several hundred thousand that separates modern urbanism from smaller places. Yet a limitation of such a measure (>500k) is that it lumps together a great metropolis of Bogota at 8m with large cities like Cali at 2.5m and even medium cities like Ibague or Bucaramanga barely above .5m. And this is the key limitation of the analysis so far, lumping together in the top category ">500k" places of very different urbanness such as .5m Cucuta and 8m Bogota.

Regression results are set in table 5: notably Bogota is less happy than the district center base case. The model elaboration follows from the previous section, except that specification b8 includes urbanicity measures from the previous section in addition to settlement type variable used in this section; as such this is an oversaturated model and should be interpreted with caution. We rather

1 consider results from b5-b7 as “final” at about -.5 to -.75 on Bogota. In model b7 Bogota's effect size
 2 is similar to that of self reported health (on 1-5 scale). These are large effect sizes for 1-10 life
 3 satisfaction scale.

4

	b1	b2	b3	b4	b5	b6	b7	b8
District center base case								
Regional center	0.24+	0.02	-0.06	-0.07	-0.05	-0.05	-0.17	-0.23
Capital city (Bogota)	-0.40**	-0.44**	-0.53***	-0.55***	-0.49**	-0.49**	-0.76***	-0.93**
age		0.03	0.05+	0.05+	0.06*	0.06*	0.06*	0.05*
age2		0	0	0	0	0	0	0
male		-0.33**	-0.33**	-0.33**	-0.28*	-0.28*	-0.29*	-0.29*
married or living together as married		0.2	0.21	0.21	0.22	0.22	0.2	0.19
divorced/separated/widowed		-0.06	-0.06	-0.06	-0.06	-0.06	-0.08	-0.08
health		0.77***	0.72***	0.71***	0.71***	0.71***	0.71***	0.71***
income			0.10***	0.09***	0.09***	0.09***	0.09***	0.10***
class				0.05	0.05	0.04	0.05	0.05
religious services					-0.01	-0.01	-0.01	-0.01
trust						0.1	0.13	0.13
constant	8.19***	4.39***	3.83***	3.76***	3.49***	3.49***	3.84***	4.13***
religious denomination dummies	no	no	no	no	yes	yes	yes	yes
employment status dummies	no	no	no	no	yes	yes	yes	yes
regional dummies	no	no	no	no	no	no	yes	yes
size of a place dummies	no	no	no	no	no	no	no	yes
N	1520	1520	1520	1520	1520	1520	1520	1520

5

6

Table 5: OLS regressions of life satisfaction.

7

8

9 The base category, <10k, proxies free of city natural environment most closely resembling human natural
 10 habitat where humans have evolved, and it includes: wilderness, open country, and small villages. The
 11 >500k category is large cities, a critical category that must be measured based on earlier review of theory.
 12 There is likely to be a threshold at several hundred thousand that separates modern urbanism from
 13 smaller places. Yet a limitation of such a measure (>500k) is that it lumps together a great metropolis of
 14 Bogota at 8m with large cities like Cali at 2.5m and even medium cities like Ibague or Bucaramanga
 15 barely above .5m. And this is the key limitation of the analysis so far, lumping together in the top category
 16 “>500k” places of very different urbanness such as .5m Cucuta and 8m Bogota.

17

18 Regression results are set in table 5: notably Bogota is less happy than the district center base case.

19 The model elaboration follows from the previous section, except that specification b8 includes

~~1 urbanicity measures from the previous section in addition to settlement type variable used in this
2 section; as such this is an oversaturated model and should be interpreted with caution. We rather
3 consider results from b5-b7 as “final” at about .5 to .75 on Bogota. In model b7 Bogota's effect size
4 is similar to that of self-reported health (on 1-5 scale). These are large effect sizes for 1-10 life
5 satisfaction scale.~~

6

7 The limitation of this urbanicity measurement is that it is only available for the 2018 wave, and that
8 there are only 3 types of settlements. In the online appendix we try other approaches and we also
9 conclude that Bogota is significantly less happy than places smaller than 10k.

10

11

12 Discussion and Conclusion

13

14 This is the first study to test Colombian urban-rural happiness gradient hypothesis using a proper
15 dataset with adequate urbanism measure and controlling for SWB predictors. Another contribution is the
16 innovative use of the WVS data to study urban-rural happiness for the capital city, Bogota—to our
17 knowledge it is the first such study (among all countries). Likewise, to our knowledge, this is also the first
18 WVS study (among all countries) using district, regional, and national center (Bogota) to study urban-rural
19 happiness gradient.

20

City usefulness is mostly economic—having many people settled densely aids in production and
21 consumption (O'Sullivan, 2009). High density facilitates production by making labor specialization
22 possible, and the agglomeration and scale economies make the provision of services and amenities more
23 economical (O'Sullivan 2009).

24

Yet there are multiple social and psychological discontents of urban life as elaborated earlier. We
25 have used the happiness yardstick to weigh positives and negatives—in the case of Bogota, negatives
26 outweigh positives. We find a substantial negative effect size of about -.54 to -.759 for Bogota. The
27 evidence for the urban-rural SWB gradient, however, is less—strong. This is broadly consistent with
28 previous research showing that while in general there is a happiness gradient rising from low happiness in
29 large cities to high happiness in rural areas, the largest happiness difference is between the largest cities
30 vs. rurality, i.e., cities bigger than several hundred thousand experience the largest happiness penalty
31 (Okulicz-Kozaryn, 2016).

32

Importantly, there is a reason to study urban-rural happiness gradient in different countries, as the
33 gradient is a function of economic development—it tends to be weaker in poorer countries (Tassinari et al
34 2025; Okulicz-Kozaryn & Valente, 2021; Berry & Okulicz-Kozaryn, 2009), and indeed cities may even be
35 happier in the very poorest nations such as in Sub Saharan Africa. Yet, in Colombia, a moderately poor
36 country, we still find that its largest city, Bogota, is markedly less happy than smaller areas.

37

It is ironic that Bogota's mayor Enrique Penalosa (1998-2001 and 2016-2019) was a champion of
38 happiness: ~~"Happiness itself is a commons to which everyone should have equal access,"~~ "So we are
39 forced to find another measure of success. I think the only real obvious measure of success is

1 happiness," "Happiness itself is a commons to which everyone should have equal access" (Cathey 2023).

2 An irony, but not necessarily that the mayor's happiness focus did not work, perhaps without it, Bogota
3 would have been even less happy.

4 There is an indigenous concept of "Buen Vivir" (Good Living) (Hidalgo-Capitan & Cubillo-Guevara,
5 2017), similar to Aristotelian "Eudamonia"--both emphasize harmony and community. Buen Vivir is also
6 about the natural environment and food sovereignty (Guardiola and Garc-ia-Quero 2014). Notably, Buen
7 Vivir helps to explain an apparent contradiction that poorer rural areas can be happier than rich Bogota.
8 Economic poverty is relative, it depends on specific way of life--e.g., households that grow their own food
9 and are in an indigenous community depend less on money to be happy (Garc-ia-Quero and Guardiola
10 2018). Similar to happy kibbutzniks (Morawetz et al. 1977) and Amish (Surowiecki 2005). A Peruvian
11 social psychologist specializing in happiness argues that the origins of Latin happiness can be traced to:

12 the minimalist well-being lessons of Andean and Amazonian small traditional
13 communities which constitute the grounds of Latin American happiness, a lifestyle that
14 mimics the ancestral environment, the deep nature where the happiness brain wiring
15 occurred; a physical and social environment that naturally activates the brain pleasure
16 circuits. Culture resembles evolutionary needs; resources to achieve needs are available
17 for everyone; positive, interdependent collectivistic interaction is ingrained in behavior,
18 supporting, working, competing, and sharing (Yamamoto, 2016, p. 45).

19 Likewise, the present article does argue that happiness is to be found in traditional, full of nature rural
20 villages and towns, not the metropolis of Bogota.

21 It is usually forgotten that a city is a very recent human invention in our species history. Using a cutoff
22 of 100k to denote a settlement that is a city, in 1950, a mere 13% lived in cities,--only about 3 generations
23 ago, rural was a norm. And in 1800, before industrialization took off, a minuscule 1.7% lived in
24 cities--urban way of life was almost unheard of just several generations ago (Davis, 1955).⁴
25 Fundamentally, urbanism is incompatible with human nature--homo sapiens evolved without cities
26 (Maryanski and Turner, 1992). Humans crowded in a city are like ants in an anthill or bees in a hive--but
27 humans are unlike ants or bees--by one estimate humans are 90% chimp and only 10% bee (Haidt 2012).
28 Only industrial revolution, merely 200-250 years or about 7-10 generations ago, unleashed urbanization
29 at a scale.

30

31 One mechanism for urban unhappiness is comparisons (Michalos 1985). Big cities expose people
32 to more comparisons, and as people tend to make upward comparisons (Frey & Stutzer, 2002; Frey et al.,
33 2008) it may result in relative deprivation and lower happiness, just as neighbors act as negatives
34 (Luttmer 2005). Incidentally, there is a similar hint from ~~another-one~~ area in Colombia: inhabitants of poor
35 municipalities in the Choco are happy to know only that environment in which they were born and raised,
36 but when they know and live in other municipalities with greater socio-economic development their
37 demands and expectations increase (Munoz-Cardona, 2018). In other words, ignorance may be a bliss
38 (Okulicz-Kozaryn, 2023).

⁴ Using the UN definition of urban, only about 3 generations ago in 1950, 70% of humans led a rural way of life--rural was a norm, but in another
39 generation, in 2050, the proportions will have flipped, and 70% of the world will be urban (population.un.org/wup).

1 There are limitations. Causality may not be present—results are correlational as in any
 2 non-(quasi-)experimental study. However, note that experiments and even quasi-experiments are
 3 implausible in study of urban-rural geographies as these geographies can hardly be manipulated in an
 4 experimental way. Also the results may not generalize to other countries, especially outside of the Latin
 5 American context.

6 Future research can use Colombian happiness data to explore further, e.g., Como Vamos data that
 7 provides granular information about government performance across cities (as described in Martinez et
 8 al. 2015), and government data, including Departamento Nacional de Planeacion (DNP) and
 9 Departamento Administrativo Nacional de Estadística (DANE), which is collecting information about SWB
 10 in different domains since 2017 (PNUD, 2023) The study of SWB in a complex country like Colombia can
 11 shed light on different domains beyond income and poverty reduction. The long-standing civil conflict, the
 12 consequences of predatory drug trafficking, and the large number of displaced populations deserve a
 13 holistic approach to measuring social progress.⁵

14

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 34 than urban. Especially that we use data for 1998, 2012, and 2018--when there was even more rural conflict and violence than now, especially before
 35 2016 when the peace agreement was signed and rural areas experienced violence reduction (International Crisis Group, 2016).

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2 See online appendix file separately

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22 Response to reviewers

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25 Reviewer #1: I think that the paper is prepared in a professional way. The theory is explained in a nice and convincing
26 way, and the data analysis is conducted in a convincing way. By examining the interesting case of Columbia while
27 using a dataset not previously used in that context, e.g., enabling the singling out of Bogota residents in the 2018
28 wave, I think that the paper delivers a fruitful contribution to the literature.

29

30 n/a

31

32 I only have one major suggestion/reservation: I suggest that you report on the findings of Burger et al. (2011) and
33 contemplate on why your findings seem to conflict with theirs. In the paper as of now, you disregard the findings of
34 Burger et al. (2021), because they use Gallup's self-reported measure of urbanity, which according to you is
35 "improper", c.f., the use of the word "proper" on page 11: "This is the first study to test Colombian urban-rural
36 happiness gradient hypothesis using a proper dataset with adequate urbanism measure and controlling for SWB
37 predictors". I agree that using an objective measure of urbanity is much preferable to using a subjective one.
38 However, I would not disregard the subjective ones all together. And besides, the measure of urbanity that you are
39 using is not 100% objective. It probably relies on the interviewer's assessment of how many inhabitants are living in
40 the residential environment where the respondent lives. You write that this assessment "must reflect actual objective
41 information", page 7, but this is not given. If you have any evidence to document this, you should include it in the
42 paper. The paper Burger et al. (2021) is the following: Burger, M., Hendriks, M., & Ianchovichina, E. (2021). Happy

1 but unequal: Differences in subjective wellbeing across individuals and space in Colombia. Applied research in quality
2 of life, 1-45

3

4 We have added discussion in a new section "SWB and Urbanism in Colombia"

5

6

7 Besides, I found a small error: You cite the publication by Carlsen and Leknes incorrectly in the text and in the
8 reference list. You write that it is "unpublished" and from the year 2019, when in fact the correct citation is: Carlsen,
9 F., and Leknes, S. (2022). The paradox of the unhappy, growing city: Reconciling evidence. Cities, 126, 103648.

10

11

12 fixed

13

14 Reviewer #2: I have read the manuscript titled "Happy Colombia, Unhappy Bogota."

15

16 The manuscript examines the urban-rural gradient of happiness in Colombia, a country characterized by high levels
17 of income and wealth inequality. Using OLS regression analysis on World Values Survey (WVS) data, the authors find
18 that populations in cities with over 500,000 inhabitants are significantly less happy than rural populations in towns
19 with fewer than 10,000 inhabitants.

20

21 I recommend major revisions before this manuscript can be considered for publication. While the writing is clear and
22 the authors articulate their ideas effectively, several substantial weaknesses need to be addressed.

23

24 n/a

25

26 Major concerns:

27 1) Insufficient justification for case selection. If the authors aim to understand happiness gradients in unequal
28 countries, the single-country focus on Colombia is inadequately justified. The WVS includes data from numerous
29 countries with high inequality levels, yet the rationale for selecting Colombia as the primary case study remains
30 unclear. A comparative approach would strengthen the study's contributions.

31

32 We have added text and reorganized—now we have a dedicated section to address this: "SWB
33 and Urbanism in Colombia"

34

35 2) Ambiguity regarding causal claims. The manuscript does not clearly distinguish between correlational and causal
36 analysis. This is problematic given that the authors dismiss several potentially relevant studies without establishing
37 that their own results meet the standards they appear to be imposing on prior work.

38

39 Added usual caveat on correlational results to abstract and conclusion.

40 We do not dismiss the other study anymore, but now discuss it.

41

42 3) Over-reliance on a single source. The literature review exhibits a significant imbalance, appearing to be
43 constructed almost entirely around "Urban unhappiness is common" (Okulicz-Kozaryn & Valente, 2021). The
44 theoretical framework and numerous key claims derive from this single paper. A broader engagement with the
45 literature is essential to substantiate the manuscript's arguments.

46

47 Added more literature.

48 We have toned down on "Urban unhappiness is common" (Okulicz-Kozaryn & Valente, 2021)—dropped
49 where practicable and added other references. Still, some references to this piece remain as it
50 is the key study—the first (and only?) to calculate the urban-rural happiness gradient for the
51 whole world but also separately for each country and using WVS (like this study), not Gallup.

1
2 4) Weak discussion section. The discussion suffers from both the narrow literature base and the inadequately justified
3 case selection. For instance, the authors dismiss results from Gallup surveys by referencing another paper, but given
4 the centrality of this critique to their argument, they should explain these concerns directly rather than redirecting
5 readers elsewhere.
6
7 Added discussion on Gallup paper in earlier literature sections. Justified case selection better.
8 And we added a brief note on limitations in discussion section.
9
10 Specific comments:
11 1) Please add line numbers to facilitate the review process.
12
13 done
14
15 2) Page 3: "But compared to this extensive research in the developed world, there is a dearth of evidence on the
16 urban-rural happiness gradient in the less developed countries." Several studies do address developing countries and
17 should be cited here, as the current phrasing suggests no such literature exists.
18
19 We rephrased; added 2 notable studies from China, and we clarify that per Latin America we
20 elaborate in the next section, where we now added more studies to have a complete
21 perspective on the state of the art in the region.
22
23 3) Page 4: "Burger et al. (2021) is an exception, but it uses questionable Gallup data (see discussion in
24 Okulicz-Kozaryn & Valente, 2021), hence, we leave it out." This dismissal appears abrupt and undermines scholarly
25 discourse. The authors should present all relevant findings while contextualizing any methodological concerns,
26 allowing readers to assess the evidence independently.
27
28 done—see "SWB and Urbanism in Colombia" section
29
30 4) The repeated citation of Okulicz-Kozaryn & Valente (2021) on nearly every page suggests insufficient engagement
31 with the broader literature.
32
33 fixed—as explained above
34
35 5) Page 11: Table 5 is missing an explanatory note.
36
37 If you mean the caption, it has one "Table 5: OLS regressions of life satisfaction." and there is a paragraph
38 describing it "Regression results are set in table 5: notably..."
39