



Cities, Inequalities and the Geography of Societal Discontent in European Regions

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Abstract

The “urban wellbeing paradox” is a recurring theme in research examining the differences in life satisfaction across settlements of varying sizes, suggesting that large cities are consistently associated with higher levels of dissatisfaction due to disproportionately high interpersonal income inequalities. This paper re-evaluates that conclusion by analysing the relationship between individual dissatisfaction, conditions of personal disadvantage, and income inequality in large cities. Our extensive study, based on self-reported dissatisfaction from over 760,000 citizens living in EU and UK NUTS2 regions between 2013 and 2018, reveals that individuals facing occupational and economic disadvantages are the most negatively affected by living in urban areas. However, urbanization economies partially offset these negative effects, particularly for those individuals in disadvantaged conditions.

Keywords Cities · Income inequalities · Discontent

Introduction

The “urban wellbeing paradox”—the higher perceived dissatisfaction with one’s life among residents of large cities compared to those in less urbanized communities (Morrison, 2021)—is a well-documented finding in studies examining variations in life satisfaction across settlements of different sizes. This phenomenon is particularly evident in the most developed countries of the Western and Northern parts of the globe (Burger et al., 2020).

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However, this paradox stands in contrast to some of the defining characteristics of major cities, which continue to attract growing populations and serve as key hubs for the most dynamic processes of economic growth (Glaeser, 2011; Glaeser & Cutler, 2021; Duranton & Puga, 2020).

This puzzling result has sparked a rich literature, highlighting the role of both individual and contextual characteristics, and their interplay, as source of this counterintuitive result (Biagi & Meleddu, 2023; Burger et al., 2020; Cardoso et al., 2019; Morrison, 2021; Hoogerbrugge & Burger, 2021; Morrison & Weckroth, 2018; Lenzi & Perucca, 2019, 2022). This literature has suggested two main explanations for the urban wellbeing paradox.

The first explanation points to a socioeconomic composition effect, arising from the diverse balance of individuals with varying socioeconomic profiles in urban versus rural areas (Morrison, 2021). Cities, in fact, host a wide array of individuals and social groups. On the one hand, top talents seeking to capitalize on their skills and education are drawn to large cities, where high-paying “superstar” jobs are available. On the other hand, cities also attract individuals at the bottom of the skill and education spectrum, often facing insecure and precarious employment, such as gig workers (Autor & Dorn, 2013). The relative size of these different social groups may be at the root of the urban wellbeing paradox. According to Eurostat, in 2021, the unemployment rate in EU cities was around 7.8%, compared to just 5.8% in rural areas. Consequently, when cities have a higher share of population with characteristics negatively associated with subjective wellbeing—such as low education, poor skills, and unstable jobs—the urban wellbeing paradox is more likely to emerge (Carlsen & Leknes, 2022).

While this composition effect is purely quantitative, determined by the relative mix of individual profiles in urban versus rural areas, much less is known about the occurrence of a *qualitative* effect of urbanisation on the wellbeing of individuals with different socioeconomic statuses. Put differently, are individuals in condition of economic disadvantage (advantage) living in urban areas less (more) satisfied than their counterparts living in more rural regions? There are several reasons to expect that rurality and urbanization might have varying effects on the wellbeing of individuals depending on their socioeconomic characteristics. In highly urbanized areas, individuals at the bottom of the skill and education spectrum are likely to be disproportionately affected by the negative externalities of large cities—such as higher living costs, segregation in peripheral areas, and long commutes—while having limited access to urban amenities both physically and financially. As a result, economically disadvantaged individuals may experience an additional decline in subjective wellbeing due to their urban location, compared to their rural peers. Conversely, those with top incomes and education levels are more likely to benefit from the opportunities of large cities, including better job prospects, high salaries, and the advantages of urbanization economies, such as access to diverse consumption amenities and specialized services (Burger et al., 2020; Cardoso et al., 2019; Morrison, 2021; Hoogerbrugge & Burger, 2021; Morrison & Weckroth, 2018). This hypothesis is supported by some studies, which suggest that high education and economic status can mitigate the negative effects of urbanization on wellbeing (Lenzi & Perucca, 2022). However, there is

still limited evidence on the potential exacerbating effects that urbanization may have on the wellbeing of individuals in socioeconomic disadvantage.

The second explanation for the higher levels of dissatisfaction in large cities involves an *urbanization balance effect*. Specifically, this hypothesis suggests that the gap in subjective wellbeing in large cities results from an imbalance between urbanization costs and benefits, with the former—such as high living costs, long commutes, and crime—outweighing the latter, such as job opportunities and access to amenities (Fischer, 1973; Okulicz-Kozaryn, 2015). This interpretation aligns with Richardson's (1973) competing theory, which posits that high wages in cities serve as compensation for the negative externalities and disutility associated with urban life. However, the limitation of this approach is that it is still unclear which contextual factors determine the unbalance between urbanisation costs and benefits.

Within this line of research, some authors have recently proposed and empirically showed that one of the most significant—and overlooked—predictors of individual dissatisfaction is not the per capita income of regions nor their economic performance in terms of GDP growth, but rather the intensity of intraregional income inequalities, particularly the uneven distribution of wealth within a community (Lenzi & Perucca, 2021). Intraregional income inequalities, which are most pronounced in the largest cities (Florida, 2017; Behrens & Robert-Nicoud, 2014; Royuela et al., 2019) and tend to increase with city size (Castells-Quintana, 2020; Glaeser et al., 2015; Sarkar et al., 2016), represent a crucial urbanization cost. As a result, they are a strong candidate for explaining the urban wellbeing paradox (Lenzi & Perucca, 2021, 2023). Table 1 presents the average level of income inequality (measured by the Gini index on net income) in EU NUTS2 regions, confirming its positive correlation with city size.¹

Source: authors' elaboration on OECD data.

Also in this case, intraregional income inequalities can influence individual discontent in regions with varying levels of urbanization through both *quantitative* and *qualitative* mechanisms. The *quantitative* mechanism refers to the fact that urban areas tend to have higher levels of income inequality, which in turn negatively affects the subjective wellbeing of their residents. However, there is also evidence of a *qualitative* mechanism (Lenzi & Perucca, 2021). Specifically, in the context of European Union (EU) regions, the negative impact of intraregional income inequality on subjective wellbeing is more pronounced for individuals in disadvantaged conditions (e.g., the unemployed, low-educated) compared to those in relatively advantaged positions (e.g., employed, highly educated). What remains unclear, however, is the role of urbanization in moderating the relationship between income inequality and wellbeing.

Although large cities are characterized by the highest levels of income inequality, in fact, they can also foster mechanisms - through agglomeration economies (Duranton & Puga, 2020) - that help mitigate the negative effects of inequalities on subjective wellbeing, particularly for socioeconomically disadvantaged individuals. For example, cities offer fluid, diverse, and dynamic labour markets

¹The NUTS classification (Nomenclature of territorial units for statistics) is the hierarchical system for dividing up the economic and administrative territory of the EU and the UK.

Table 1 Average Gini index in EU regions with cities of different size

Size of the largest city in the region	Mean (Gini index)	Std. dev.
More than 1 mln inhabitants	0.327	0.040
500k – 1 mln inhabitants	0.309	0.042
250k – 500k inhabitants	0.308	0.044
100–259 inhabitants	0.280	0.031
Less than 100k inhabitants	0.268	0.037

(matching), access to shared public infrastructure and services (sharing), and faster knowledge dissemination (learning), all of which can partially offset the disadvantages stemming from large income disparities associated with intense urbanization. The accessibility of urban infrastructure and diverse job markets provides opportunities for individuals, even those at the bottom of the social hierarchy, to potentially improve their social and economic status.

Building on these considerations, this paper reassesses the relationship between individual discontent, individual disadvantage conditions, and intraregional income inequalities—viewed as a form of urbanization diseconomy—with the goal of determining whether this interplay varies across settlements with different levels of urbanization intensity. In doing so, this paper complements existing research on the impact of inequality on life satisfaction (Dickinson & Morrison, 2021).

More specifically, this work studies the effect on discontent of both a condition of individual disadvantage and intraregional income inequalities, in communities with different degrees of urbanisation. The research questions are therefore the following ones:

- RQ1: Keeping other things constant, does living in a large city amplify the discontent of people in condition of individual disadvantage?
- RQ2: Keeping other things constant, does living in a large city mitigate the effect of intraregional income inequalities on the discontent of people in condition of individual disadvantage?

As discussed above, in the first case (RQ1), individuals facing socioeconomic disadvantage are expected to experience a further decline in subjective wellbeing due to intense urbanization. This is primarily because of their limited access to urban amenities and benefits, coupled with increased exposure to the negative externalities of cities. In the second case (RQ2), however, urbanization is anticipated to mitigate the negative effects of intraregional income inequalities on individual discontent. This is achieved through enhanced educational and occupational opportunities available in cities, which can facilitate upward mobility, particularly for disadvantaged individuals. This hypothesis aligns with the so-called “tunnel effect,” proposed by Hirschman and Rothschild (1973), which suggests that seeing others succeed can boost one’s own life satisfaction, especially in contexts where upward mobility is possible, as observed in certain European countries. Additionally, it ties into the real options literature, which posits that individuals who migrate to more unequal places may thrive and achieve significant success, while retaining the option to return to their original locations if they do not succeed (Grimes & Wesselbaum, 2020).

On empirical grounds, this paper employs a multilevel modelling framework to explore the effects of individual characteristics and income inequalities on personal discontent across different types of settlements (i.e., large cities vs. all other settlements). Multilevel modelling allows investigating the interplay between variables available at multiple scales of analysis, i.e. the urban and individual level ones (Koopman et al., 2021, Lenzi & Perucca, 2021). Specifically, the dataset used in the analysis, sourced from Eurobarometer surveys in the period 2013–2018, includes observations on more than 760,000 EU citizens and their individual satisfaction, thus making possible to test empirically the nexus between subjective discontent, income inequalities and several individual level characteristics in different settlement structures.

The rest of the paper is organised as follows. The next section presents the data and methods applied. Section [Results](#) reports the results and Sect. [Conclusions](#) concludes with some discussion and final remarks.

Data and Empirical Approach

The measurement of life (dis)satisfaction has been a long-debated topic in the literature aimed at understanding the various dimensions of individual subjective well-being, which is traditionally considered to encompass hedonic, cognitive, and eudaimonic elements (Mouratidis, 2019). In particular, the cognitive dimension has been emphasized in studies assessing the relationship between urbanization and subjective well-being, as this dimension involves judgments on the relevance of different resources, goods, and services for overall life satisfaction (Gärling & Gamble, 2012).

The most common approach to appraising the cognitive dimension of well-being and measuring life (dis)satisfaction is through survey data that capture individual self-reported life satisfaction (see, for example, Deaton, 2008; Hoogerbrugge and Burger, 2021). Empirically, this method has been validated by hundreds of studies that aim to identify the determinants of individuals' perceptions of their own quality of life (Diener et al., 2002; Easterlin, 2001).

In the present paper, individual level data on life satisfaction are drawn from 35 waves of the Eurobarometer (EB) survey studies. The Eurobarometer (EB) survey provides an opportunity to monitor respondents' individual satisfaction with extensive temporal and spatial coverage. The studies considered in this work (listed in Table A1 in Appendix) cover the period 2013–2018 and all EU member countries plus the UK. Importantly, the EB surveys include a recurrent question asking respondents about their degree of life satisfaction by selecting one of the following options: “very satisfied”, “fairly satisfied”, “not very satisfied” and “not at all satisfied” with their life. The individual discontent variable is measured by reverse coding the life satisfaction one, so that higher values of the variable correspond to higher levels of individual discontent.

The econometric approach applied in order to assess the variation of individual life dissatisfaction across settlements relies on a multilevel model framework including a set of variables capturing individual features and other variables characterizing the context of residence.

At the individual level, the variables considered include demographic and socio-economic factors (age, gender, education, occupation, marital status) tracked by the Eurobarometer survey, which have been identified in the literature as key determinants of life satisfaction (Dolan et al., 2008). Two factors are of particular interest for this analysis, as they help identify the most disadvantaged groups: unemployment status and individual economic condition.

The dissatisfaction of unemployed individuals, as well as those facing economic difficulties, is expected to be heightened in urban environments, where they are more exposed to the negative effects of urbanization diseconomies while not fully benefiting from the advantages. However, living in more urbanized settings is also assumed to alleviate the impact of high intraregional income inequality by offering more opportunities—compared to rural areas—for individuals in socioeconomic disadvantage to climb the social ladder and improve their precarious conditions.

From an empirical point of view, EB surveys do not contain an explicit question on neither individuals' income nor wealth. Therefore, we capture the condition of individual disadvantage through the answers provided about one's own (i) unemployment status, (ii) ownership of the dwelling of residence and (iii) difficulty in paying the bills.²

At the regional level, and consistent with the literature (Dijkstra et al., 2020), the variables included in the econometric analysis are the level and the rate of growth (over the previous 10 years) of GDP per capita, the employment rate, and the share of population aged over 65. These variables aim at capturing the competitiveness of the region, and the subsequent economic aggregate advantages available to the resident population. According to the literature (De Dominicis et al., 2022), GDP per capita (level and growth) and the employment rate are expected to be negatively associated with discontent, while an aged population to be positively associated with discontent.³

Intraregional income inequalities are measured using the Gini index of after-tax disposable income, consistent with previous literature (Lenzi & Perucca, 2021). This indicator captures the distributional symmetry of the aggregate benefits generated by regional socioeconomic systems among the resident population.

²More precisely, the three variables are defined as follows. The unemployment status is a dummy equal to one if the respondent answered "Unemployed" to the question "What was your last occupation?", and equal to zero otherwise. The ownership of the dwelling of residence is coded as one if the respondent replied "An apartment / a house which you have finished paying for" to the question "Which of the following goods do you have?", and equal to zero otherwise. This definition is purposely more conservative with respect to the one frequently used in the literature (i.e. dwelling ownership with or without a mortgage). Since EB surveys do not provide data on respondents' income, this information has to be indirectly inferred from other individual characteristics. A restrictive definition, therefore, allows marking more sharply the divide between individual groups in terms of income. Finally, the difficulty in paying the bills is a dummy equal to one if the interviewee answered "most of the time" to the question "During the last twelve months, would you say you had difficulties to pay your bills at the end of the month?", and equal to zero otherwise.

³This expectation may look at odds with the well-known U-shaped effect of age on individual wellbeing, which is also tested and confirmed in the econometric analysis. On the other hand, regional economies characterised by an aged population generally tend to show more favourable economic and employment outlooks; both elements are generally associated with lower wellbeing (Dijkstra et al., 2020).

To test our research hypotheses, we aim at identifying the settings with the highest levels of urbanization. The Eurobarometer (EB) surveys do not provide specific information on the respondents' municipalities of residence, but only on the NUTS2 region in which they live. Therefore, as a first step, we identified NUTS2 regions that contain a city with more than 500,000 inhabitants. Several studies have shown that in the EU, urbanization tends to result in higher perceived individual discontent when population thresholds exceed this number (Lenzi & Perucca, 2018). Since NUTS2 regions are relatively large, and urban and rural areas can coexist within the same region, we classified respondents as living in a large city only if they explicitly stated that they do not reside in a rural community.⁴

The variables description is reported in Table 2, together with some summary statistics.

The empirical model tested in the paper takes the following form:

$$discontent_{i,r,t} = \alpha (intraregional\ inequalities_r) + \beta (urban\ location_{i,r}) + \delta X_i + \eta Q_r + \mu_n + \rho_r + \tau_t + \epsilon_i \quad (1)$$

where i stands for the individual, t for the time at which the survey was conducted, while r and n represent respectively for the region and the country of residence.

The dependent variable is the self-reported level of discontent with life, and the explanatory variables include a series of socio-demographic characteristics at the individual level, X_i , and regional level characteristics, Q_r , as detailed in Table 2.

Two main hypotheses are examined in the analysis. The first one is whether a condition of individual disadvantage penalizes more those living in large cities than their counterparts in less urbanized settings. The second hypothesis is whether large cities mitigate the negative effect of intraregional income inequalities on discontent, in particular for individuals in a condition of disadvantage, i.e. those particularly harmed by socioeconomic disparities (Lenzi & Perucca, 2021).

On empirical grounds, this intuition has been tested by augmenting Eq. [1] with the interaction among (i) the three different measurements of individual disadvantage (used as alternatives and each accounting for a specific condition of disadvantage, i.e. occupational and economic), (ii) the individual urban location and (iii) the intra-regional income inequalities variable.

From the methodological point of view, Eq. [1] is estimated through an ordered logistic model, with country (μ_n), region (ρ_r) and survey study dummies (τ_t) to control for the heterogeneity of discontent over time, and ϵ_i as the residual error term. Results are robust to alternative estimation approaches, in particular a random intercept multilevel linear model where the intercept of the group regression lines is allowed to randomly vary across countries and regions (see Table A4 in Appendix).

⁴More precisely, the “large city” location is a dummy equal to one if the respondent (i) lives in a NUTS2 region with a city with more than 500 thousand inhabitants and (ii) did not answer “Rural area or village” to the question “Would you say you live in a...?”, and equal to zero otherwise. Cities are identified according to EUROSTAT’s definition of metropolitan regions. Even if on conceptual grounds the notion of city is uncontroversial, admittedly, there is no best operational definition of a city, whose final measurement reflect the specificities of the empirical analysis being implemented. For a discussion on this point see Camagni et al. (2023).

Table 2 Definition and descriptive statistics of the variables employed in the empirical analysis

Name	Description	Mean	Std. dev.	Source	Year
<i>Individual discontent (dependent variable)</i>					
Individual life discontent	Self-reported level of individual discontent with life, from very satisfied (24.57 per cent of cases), fairly satisfied (55.01 per cent), not very satisfied (15.85 per cent), not at all satisfied (4.58 per cent)			EB	2013–2018
<i>Individual disadvantage condition</i>					
Unemployed	Dummy equal to 1 if the respondent is unemployed (7.18 per cent of cases). The other occupational categories are: self-employed (7.12 per cent), manager/professional (10.53 per cent), other white collar (11.79 per cent), house worker (4.96 per cent), retired (31.84 per cent), manual worker (19.85 per cent), student (6.74 per cent); reference category = student			EB	2013–2018
No dwelling ownership	Dummy equal to 1 if the respondent is not the owner of her/his dwelling of residence (44.03 per cent of cases) and equal to zero otherwise (55.97 per cent)			EB	2013–2018
Difficulty in paying the bills	Dummy equal to 1 if the respondent encountered most of the time difficulties in paying the bills in the last 12 months (10.59 per cent of cases)			EB	2013–2018
<i>Individual urban location</i>					
Large city	Dummy equal to 1 if the respondent lives in non-rural setting of a NUTS2 region with a city with more than 500 thousand inhabitants (30.22 per cent of cases), and equal to zero otherwise (69.78 per cent)			EB+EUROSTAT	2013–2018
<i>Other individual level variables</i>					
Female	Dummy equal to one if the respondent is a female (54.34 per cent of cases) and equal to zero for males (45.66 per cent)			EB	2013–2018
Age	Age of the respondent (number of years). A quadratic effect is introduced to check for a non-linear relationship between age and life satisfaction	50.518	18.324	EB	2013–2018
Low education	Dummy equal to one if the level of education of the respondent is equivalent either to ISCED category 1 or 2 (15.25 per cent of cases) and equal to zero otherwise (84.75 per cent)			EB	2013–2018

Table 2 (continued)

Name	Description	Mean	Std. dev.	Source	Year
Marital status	Marital status of the respondent: single (17.53 per cent), married (64.11 per cent), divorced (8.45 per cent), widower (9.91 per cent); reference category= single			EB	2013–2018
Number of children	Number of children in the household	0.270	0.720	EB	2013–2018
<i>Intraregional income inequalities (NUTS2)</i>					
Gini index	Regional Gini index on after tax disposable income	0.290	0.041	OECD	2013
<i>Other regional characteristics (NUTS2)</i>					
Per capita GDP in PPP	Per capita real GDP in Parity Purchasing Standard in the NUTS2 region of residence	0.029	0.0121	EUROSTAT	2013–2018
GDP growth (%)	Average annual real growth of GDP per head in the ten years before the survey	0.860	1.334	EUROSTAT	2013–2018
Employment rate	Employed population divided by active population in the age range 17–74 in the year of the survey	0.925	0.054	EUROSTAT	2013–2018
Population 65 and over	Share of population over 64 in the region of residence of the respondent in the year of the survey	0.199	0.301	EUROSTAT	2013–2018

Note: Individual level variable sourced from EB, in the period 2013–2018. Regional level variable sourced from EUROSTAT, in the period 2013–2018. Gini index sourced from OECD, Regional Well-Being indicators. Mean and standard deviation are reported for continuous variables. Relative frequencies for each category are reported for categorical variables

Results

Summary results from the estimation of Eq. [1] are reported in Table 3, with the full set of estimates made available in Table A2 in Appendix.⁵ Column [a] reports the estimates of a model including only the individual characteristics of the respondents. Consistently with previous literature, the variables accounting for a condition of individual disadvantage - unemployment status, no ownership of the dwelling of residence and the difficulty in paying the bills - are all positively and significantly associated with discontent with life.

The model specification whose results are reported in column [b] includes the dummy for the residence in a large city. Consistently with the literature documenting the occurrence of the urban-wellbeing paradox, also in this case those individuals residing in a large city are significantly more discontent than those living in a less

⁵The results of the other individual and regional characteristics are consistent with the findings from previous literature. Life discontent increases with age until a certain threshold, after which it reduces. Married individuals are less dissatisfied than the others, while low education is associated with a higher level of discontent. Among the regional characteristics, higher employment rate relate to lower discontent. The change in GDP over the ten preceding years, is instead not statistically significant, in line with the so-called Easterlin paradox (Easterlin, 1973).

Table 3 Life discontent as a function of individual disadvantage, intraregional income inequalities and urbanisation intensity: estimation results

	[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]	[i]
Large city		0.075*** (0.010)	0.075*** (0.010)	0.070*** (0.010)	0.068*** (0.011)	0.077*** (0.010)	0.101*** (0.012)	0.044*** (0.013)	0.114*** (0.012)
Gini index (intraregional ineq.)			0.183*** (0.014)	0.183*** (0.014)	0.184*** (0.014)	0.183*** (0.014)	0.207*** (0.015)	0.232*** (0.015)	0.195*** (0.015)
Large city * Gini index (intraregional ineq.)							-0.063*** (0.011)	-0.027*** (0.012)	-0.061*** (0.011)
Unemployed	1.204*** (0.015)	1.214*** (0.015)	1.215*** (0.016)	1.195*** (0.017)	1.215*** (0.016)	1.215*** (0.016)	1.201*** (0.017)	1.214*** (0.016)	1.215*** (0.016)
Unemployed * Large city				0.067*** (0.021)			0.223*** (0.028)		
Unemployed * Gini index (intraregional ineq.)							-0.053*** (0.010)		
Unemployed * Large city * Gini index (intraregional ineq.)							-0.132*** (0.022)		
No dwelling ownership	0.270*** (0.007)	0.271*** (0.007)	0.276*** (0.007)	0.276*** (0.007)	0.271*** (0.007)	0.276*** (0.007)	0.273*** (0.007)	0.269*** (0.007)	0.275*** (0.007)
No dwelling own. * Large city					0.014 (0.011)			0.127*** (0.013)	
No dwelling own. * Gini index (intraregional ineq.)								-0.079*** (0.005)	
No dwelling own. * Large city * Gini index (intraregional ineq.)								-0.076*** (0.011)	
Difficulty with bills	1.411*** (0.009)	1.417*** (0.009)	1.412*** (0.009)	1.411*** (0.009)	1.412*** (0.009)	1.417*** (0.011)	1.413*** (0.009)	1.414*** (0.009)	1.396*** (0.011)
Difficulty with bills * Large city						-0.018 (0.018)			0.028 (0.027)
Difficulty with bills * Gini index (intraregional ineq.)									0.044*** (0.008)

Table 3 (continued)

	[a]	[b]	[c]	[d]	[e]	[f]	[g]	[h]	[i]
Diff. with bills * Large city * Gini index (intra-regional ineq.)									-0.1060*** (0.019)
Individual characteristics	YES	YES	YES	YES	YES	YES	YES	YES	YES
Regional characteristics	NO	NO	YES	YES	YES	YES	YES	YES	YES
Observations	793,272	775,579	768,609	768,609	768,609	768,609	768,609	768,609	768,609

Note: log odd ratios reported; standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Individual and regional characteristics included. Country, region and EB wave fixed effects included. Full set of estimates available in Table A2 in Appendix.

urbanized setting. This still holds true after the inclusion of the regional characteristics of the respondents' place of residence (column [c] in Table 3). Among the latter, higher intraregional income inequalities (captured by the Gini index on net income) are likely to associate with higher life discontent, as pointed out in the literature (Verme, 2011; Lenzi & Perucca, 2021).⁶

The results presented in columns [d], [e], and [f] include interactions between the dummy variable for living in a large city and various forms of individual disadvantage: unemployment status [d], lack of dwelling ownership [e], and difficulty with paying bills [f]. The interaction term's coefficient is positive and statistically significant, at least for unemployed respondents. This indicates that while both individual occupational disadvantage and residing in a large city are independently associated with higher discontent (as shown by the coefficients of the non-interacted variables), intense urbanization further amplifies the negative impact on the subjective well-being of disadvantaged individuals. This suggests a heterogeneous effect of urbanization on subjective well-being, with large city living exacerbating the discontent of those in disadvantaged circumstances, all else being equal.

This result is illustrated in Fig. 1, which shows the predicted probability of being “not at all satisfied” with life (i.e., the highest level of discontent) for individuals experiencing disadvantage, depending on whether they live in a large city or a less urbanized setting. The figure also includes the 95% confidence intervals for these

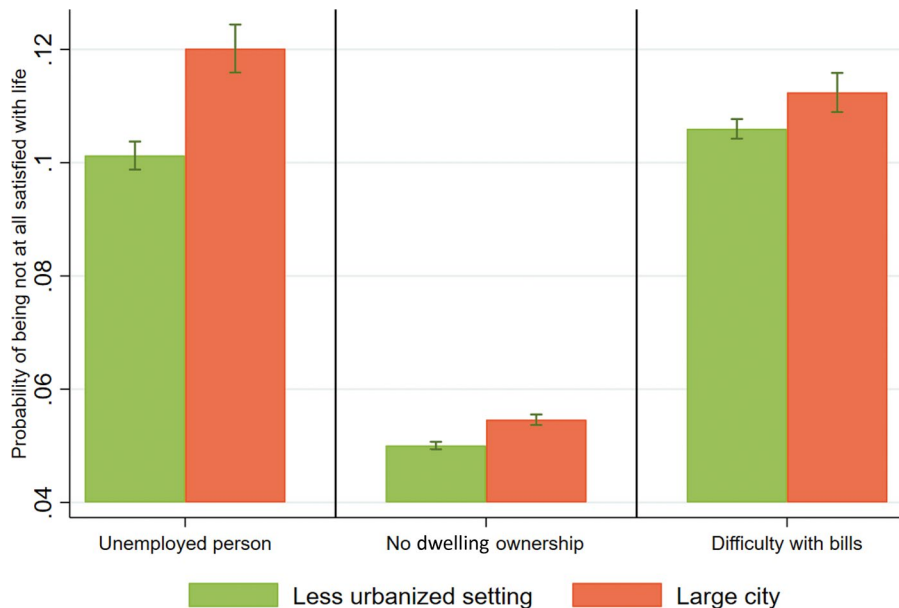


Fig. 1 Predicted probability of being not at all satisfied with one's own life for individuals in condition of disadvantage, living in settings with different degrees of urbanisation

⁶All regional characteristics have been mean standardized, so to facilitate the comparability of the results.

predicted probabilities. A pairwise comparison of predictive margins is provided in Table A3 of the Appendix, which confirms the findings in Fig. 1. For all three forms of disadvantage, living in a large city is associated with a higher probability of extreme life dissatisfaction. For example, an unemployed person living in a large city has a 12.0% probability of being “not at all satisfied” with life, a figure significantly higher than the 11.01% probability for the same profile in a less urbanized area. The same holds true for the difficulty in paying the bills and, although with a lower impact on discontent, for the non-ownership of the dwelling of residence.

Columns [g], [h], and [i] in Table 3 include the triple interaction among individual disadvantage (introduced separately), intraregional income inequalities, and the level of urbanization in the respondents’ location. This model aims at addressing our second research question: whether living in a large city mitigates the impact of intraregional income inequalities on the discontent of disadvantaged individuals.

The findings reveal some interesting insights. First, the negative and statistically significant interaction between intraregional income inequalities and the large city dummy suggests that, irrespective of the specific disadvantage, individuals in regions without a large city are more negatively affected by income inequalities. This supports the hypothesis that large cities offer more opportunities for social mobility compared to less urbanized areas. To assess whether this effect is more pronounced for disadvantaged individuals, we calculated the marginal effects of intraregional income inequalities on the probability of being “not at all satisfied” with life, based on individual disadvantage and urban location. These results are presented in Fig. 2.

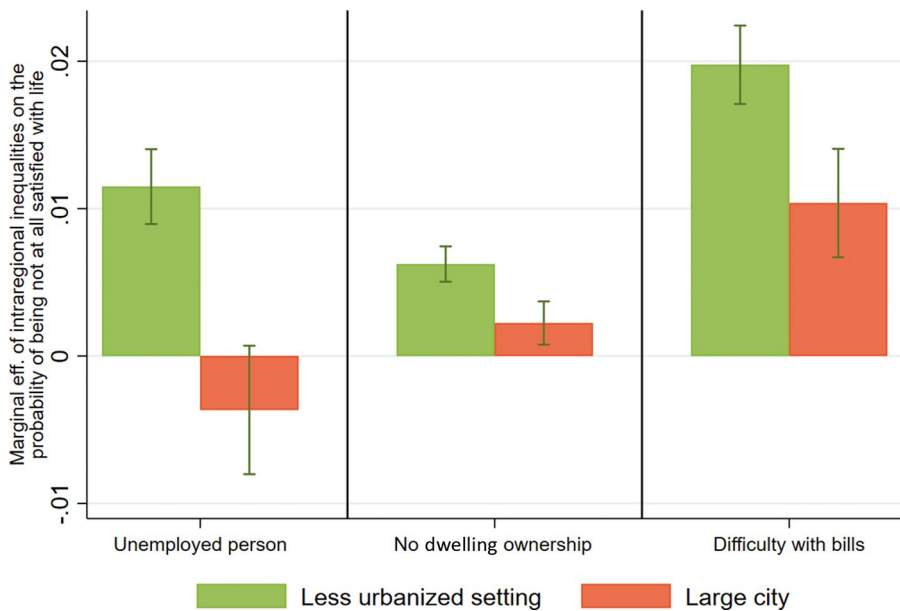


Fig. 2 Marginal effects of intraregional income inequalities on the probability of being not at all satisfied with life, for individuals in condition of disadvantage, living in settings with different degrees of urbanisation

The differences in the marginal effects of intraregional income inequalities between more and less urbanized areas are statistically significant across all three measures of individual disadvantage (see Table A3 in the Appendix). For unemployed individuals not residing in a large city, a one-standard deviation increase in intraregional inequalities is associated with a 1.1% point increase in the probability of being “not at all satisfied” with life. In contrast, this effect is not significantly different from zero for unemployed individuals living in large cities. Similar patterns are observed for the other two conditions of disadvantage. Specifically, a one-standard deviation increase in intraregional inequalities raises the probability of experiencing the highest level of discontent by about 2% points for those facing difficulties paying their bills in less urbanized areas—almost double the increase observed for individuals residing in large cities.

This suggests the presence of a qualitative mechanism through which large cities mediate the effect of income inequalities on discontent, particularly for disadvantaged individuals. All else being equal, increasing intraregional income inequalities imposes a relatively smaller penalty on the well-being of urban residents compared to their counterparts in less urbanized areas. For disadvantaged individuals, the positive effect of living in a large city is even more pronounced (see Fig. 2).

The robustness of these findings is supported by alternative econometric approaches (e.g., multilevel linear models) and different definitions of a large city (e.g., lowering the population threshold to 400,000 and then to 300,000 inhabitants). These alternative estimates, presented in Tables A4 to A6 in the Appendix, provide qualitatively similar results.

Conclusions

This paper studied the modes in which urbanisation affects individual discontent, in light of the expanding literature examining the urban wellbeing paradox (Morrison, 2021). In particular, we focused on the way in which cities affect the interplay between conditions of individual disadvantage and intraregional income inequalities. The interest for this issue relies on the nature of cities itself. Large cities are poles of attraction for a broad variety of individuals, thanks to the better occupational opportunities they provide; parallelly, urban segregation and land rent fuel income inequalities, making cities the most unequal places (Behrens, K., & Robert-Nicoud, 2014; Royuela et al., 2019; Castells-Quintana, 2020).

The recognition of these urban characteristics partially explains the higher discontent that urban residents typically experience when compared with their rural counterparts. A condition of individual disadvantage leads to higher discontent, and large cities host, compared with rural areas, a proportionally higher share of people with this profile (Burger et al., 2020; Cardoso et al., 2019; Morrison, 2021; Hoogerbrugge & Burger, 2021; Morrison & Weckroth, 2018). Living in communities with higher income inequalities is associated with higher discontent, and large cities are characterized by more intense income disparities than rural areas (Lenzi & Perucca, 2021). While the occurrence of these two *quantitative* mechanisms, i.e. based on the relative composition and characteristics of cities, are well known in the literature, the present

paper aimed at testing whether urbanisation exerts also a *qualitative* effect on subjective wellbeing.

The findings presented in the previous section confirms this hypothesis. In particular, two mechanisms shall be highlighted. On the one hand, a condition of individual disadvantage depresses wellbeing more in large cities than in less urbanized settings, confirming the unbalanced effect of cities for different social groups (Lenzi & Perucca, 2022). Unemployment and the need to pay a rent increase discontent more in urban areas than elsewhere. These categories of individuals are likely to suffer the most, due to their limited income, the negative urban externalities, with a reduced possibility of enjoying the positive ones. On the other hand, the positive association between intraregional income inequalities and discontent is mitigated by urbanisation, in particular for those people in condition of individual disadvantage. In this case, large cities offer a broader variety of educational and job opportunities allowing more easily (or perceived to allow easier) the climbing of the social ladder, consistent with the tunnel effect hypothesis.

While this study offered a first glance on the interplay between inequalities, urbanization and discontent, future research should focus on the identification of the mechanisms explaining these complex relationships.

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Data availability Eurobarometer data has been sourced from GESIS Data Archive. Full details and web linka are in Table A1 in the Appendix. All the remaining data are from EUROSTAT.

Declarations

Competing interests The Authors declare no Competing Financial or Non-Financial Interests.

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