2 Life in cities, towns and semi-dense areas, and rural areas

This chapter sheds light on the quality of life in cities, towns and semi-dense areas, and rural areas around the world. It examines various dimensions of how quality of life differs between cities and other areas by examining both objective outcomes as well as subjective perceptions. First, it scrutinises geographic differences in life satisfaction. Second, the chapter analyses to what extent key well-being dimensions, which shape life satisfaction and quality of life, differ across cities, towns and semi-dense areas, and rural areas. Specifically, it examines income and employment opportunities, educational attainment, health outcomes, access to services and utilities, and crime and violence.

Rural-city differences in quality of life

Differences in quality of life between urban and rural residents have been the subject of many economic studies. On average, urban residents appear to enjoy a higher quality of life than their counterparts in rural areas, particularly in developing countries (Gollin, Lagakos and Waugh, 2013[1]; Chauvin et al., 2017[2]; Gollin, Kirchberger and Lagakos, 2019[3]). Economists have long argued that much higher per capita incomes in cities reflect the production benefits from agglomeration in rich countries. Recent work has demonstrated this differential exists in developing countries in terms of income (e.g. (Combes, Démurger and Wang (2019[4]) and Henderson, Kriticos and Nigmatulina (2019[5])) and poverty rates (Ferré, Ferreira and Lanjouw, 2012[6]), too. Similarly, more diverse consumption opportunities in cities that arise due to agglomeration economies may also enhance the well-being of local residents (Tabuchi and Yoshida, 2000[7]).

Within-country differences of quality of life are not only highly relevant per se but are also essential for assessing drivers of internal migration flows from rural areas to more densely populated places such as cities. Thus, such differences can help to shed light on urbanisation across the globe. This is particularly important for developing or middle-income countries where spatial disparities in amenities, services, real incomes or economic opportunities tend to be very large (Henderson, Kriticos and Nigmatulina, 2019[5]).

However, a number of factors complicate quantifying rural-city differences in quality of life. Foremost are the challenges inherent to defining and measuring urban residence (Dorélien, Balk and Todd, 2013[8]; Balk et al., 2004[9]; Gollin, Kirchberger and Lagakos, 2019[3]). This adds considerable uncertainty to the magnitudes of these differentials. Surveys containing rich socio-economic outcomes typically report urban residence based on a binary administrative definition, which varies significantly across countries and thus makes cross-country comparisons difficult and biased.

This chapter sheds light on geographic differences in quality of life by using the novel, globally consistent definition of degree of urbanisation (see Florczyk et al. (2019[10]) and Chapter 1, which divides countries' national territory into three categories, cities [or densely populated areas], towns and semi-dense areas [or intermediate-density areas], and rural areas [or thinly populated areas]). By using this harmonised definition, the chapter reduces the bias in results that arises due to the diverse nature of definitions of urban areas along several dimensions (Corker, 2017[11]; Ferré, Ferreira and Lanjouw, 2012[6]). For example, some countries define urban areas by making use of explicit ad hoc or subjective criteria such as the nature of a settlement, its centricity or its infrastructure. In contrast, the degree of urbanisation uses the same conditions across the globe in terms of population size and density to identify whether an area is a city, a town and semi-dense area (TSA), or a rural area.

In the following, this chapter presents differences in quality of life across types of human settlements. First, it examines differences in life satisfaction and well-being factors across the degree of urbanisation across the world. It then examines differences across the degree of urbanisation in important well-being dimensions that shape local quality of life of residents. Specifically, it explores differences across the degree of urbanisation in: i) income and employment opportunities; ii) educational attainment; iii) health outcomes; iv) access to services, utilities, and technology; and v) exposure to violence and crime.

Life satisfaction by degree of urbanisation

Over the past decade, economists and policymakers alike have engaged in a debate on broadening the measurement of the welfare and progress of societies. Increasingly, this public discourse has emphasised the importance of going beyond gross domestic product (GDP) as the single measure of development. Instead, initiatives such as the OECD *How's Life* project propose to look at a multitude of sound well-being indicators, accounting for the different dimensions of people's lives, from those related to material conditions, such as income, jobs and housing, to those related to quality of life (OECD, 2017[12]). Most

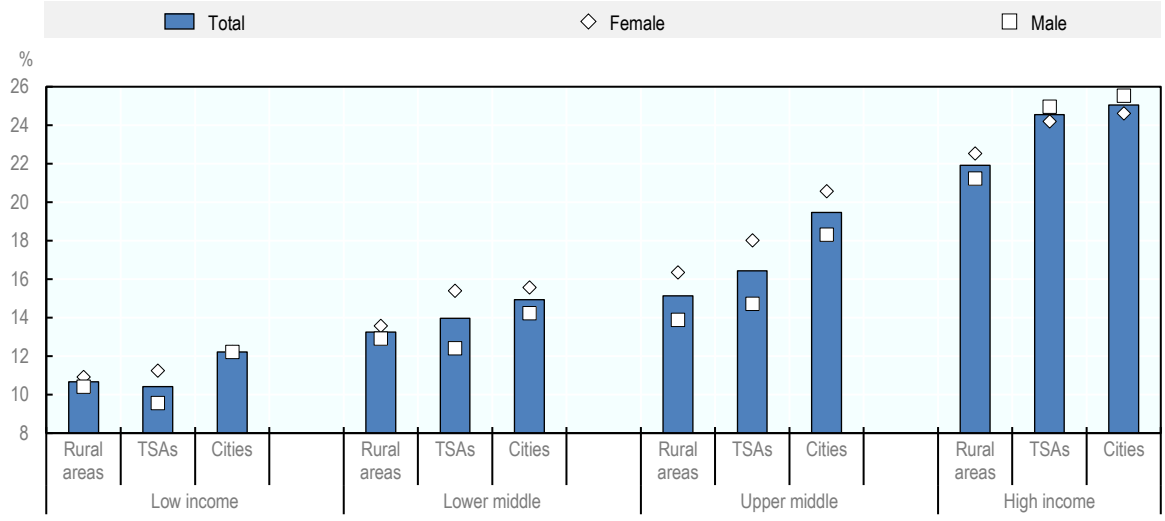
factors that directly or indirectly determine people's well-being vary considerably across different regions or cities within the same country, which highlights the importance of assessing well-being and perceptions at the subnational level (OECD, 2014[13]). In assessing subnational differences in well-being, self-reported life satisfaction and perception-based measures are an important complement to objective indicators on well-being as they might capture geographic disparities in specific life domains that objective indicators do not reveal.

Life satisfaction and living standards are highest in cities

Satisfaction with one's standard of living and with life in general differ significantly between cities, towns and semi-dense areas, and rural areas in 111 countries across the world.[1] On average, 18.6% of residents in cities are satisfied with their lives, compared to 16.5% of residents in rural areas, a statistically significant difference.[2] Life satisfaction in towns and semi-dense areas (17%) is lower than in cities but higher than in rural areas. For a limited sample of 13 OECD countries, the discrepancy in life satisfaction between cities (28.7% satisfied with their lives) and rural areas (24.4% satisfied with their lives) amounts to more than 4 percentage points.[3] This rural-city life satisfaction gap is not limited to any specific world region. In all regions except for East Asia and the Pacific (and North America, which is only represented by the United States), city dwellers appear to be happier with their living condition than rural residents.

In the large majority of areas, women report a higher level of life satisfaction than men. Except for high-income OECD countries, the share of women satisfied with life consistently and, of statistical significance, exceeds the equivalent share of men across all levels of development and all degrees of urbanisation (Figure 2.1). This gender life satisfaction differential is largest in upper-middle-income countries and most striking in towns and semi-dense areas (TSAs). For example, life satisfaction of women in TSAs' is around 3 percentage points higher than men's in lower-middle-income and upper-middle-income countries respectively. In contrast, in OECD countries, men report higher life satisfaction in both cities (3 percentage points) and TSAs (1.8 percentage points) but similar life satisfaction to women in rural areas.

Figure 2.1. Life satisfaction by degree of urbanisation, income group and gender



Note: The income groups follow the World Bank classification of countries.
Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by EC and OECD, 2019.

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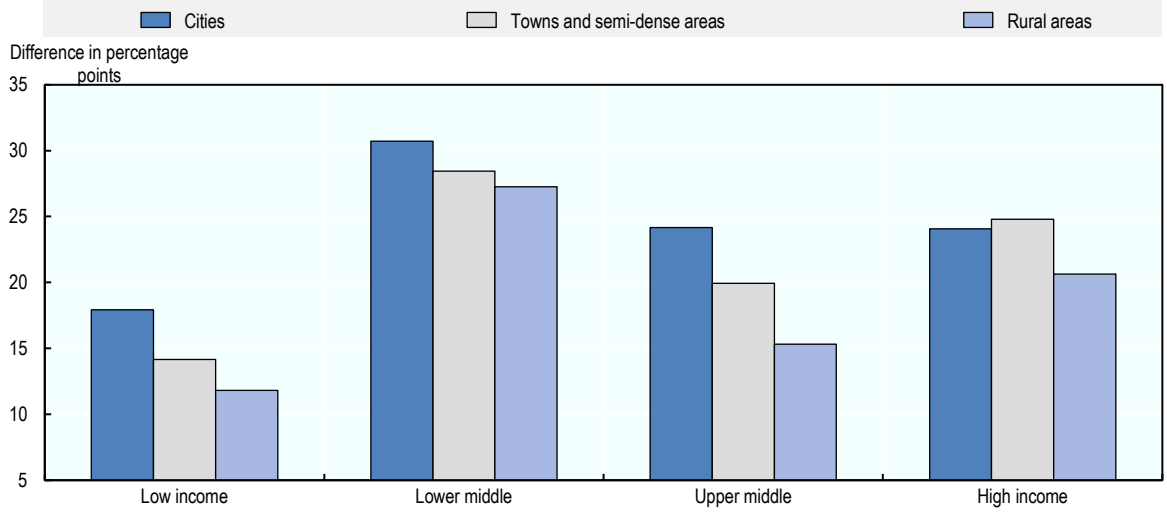
In individual countries, geographic differences in life satisfaction can be enormous. In 12 countries, life satisfaction is more than twice as high in cities as it is in rural areas.[4] This gap is largest in Azerbaijan, Egypt and the Gambia, where life satisfaction in cities is almost three times the level documented in rural areas. At the other end of the spectrum, 8 countries record 30% higher life satisfaction in rural areas. Common to most countries is that life satisfaction in TSAs usually lies in between life satisfaction in cities and rural areas.

Cities not only have higher life satisfaction but this difference to rural areas and TSAs also increases with future expectations. Compared to their current situation, citizens in all three degrees of urbanisation appear more optimistic about their future; however, residents in cities tend to be the most optimistic about their living standard five years from now (Figure 2.2). The share of city residents expecting to have a satisfying life in 5 years averages 44%, 25 percentage points higher than current life satisfaction. In comparison, the increase between current and future life satisfaction is below 23 and 20 percentage points in TSAs and rural areas respectively. Even though current and future life satisfaction are linked, there are notable exceptions such as Bulgaria where more city dwellers are positive about their future (30%) than rural residents (13%), even though city dwellers are less satisfied with their current life than rural residents.

The *happiness gap* and *optimism gap* between cities and rural areas are most prominent in the poorest countries. In low-income countries, the share of people satisfied with their lives now and the share of those optimistic about their future are 4 and 8 percentage points lower in rural areas than in cities (which corresponds to 16% and 20% relatively lower happiness) (Figure 2.2). In contrast, life satisfaction and future life satisfaction are similar in cities and TSAs in rich countries, with only rural areas falling markedly behind. While the level of economic development, as measured by GDP per capita, is strongly associated with higher life satisfaction, it does not fully explain the discrepancy between cities and rural areas.[5] Overall, the gradient in optimism about one's life across the three degrees of urbanisation is apparent in almost all parts of the world, except for North America (United States). Generally, city dwellers appear to be most optimistic, followed by residents of TSAs, with rural residents lagging behind.

Figure 2.2. Difference between future and current life satisfaction

Expected increase in life satisfaction across income groups and degrees of urbanisation, in percentage points



Note: The figure presents the percentage points difference between current and future life satisfaction by country income class across the degree of urbanisation. The question on expected future life satisfaction asks respondents to state their anticipated life satisfaction in five years.
Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

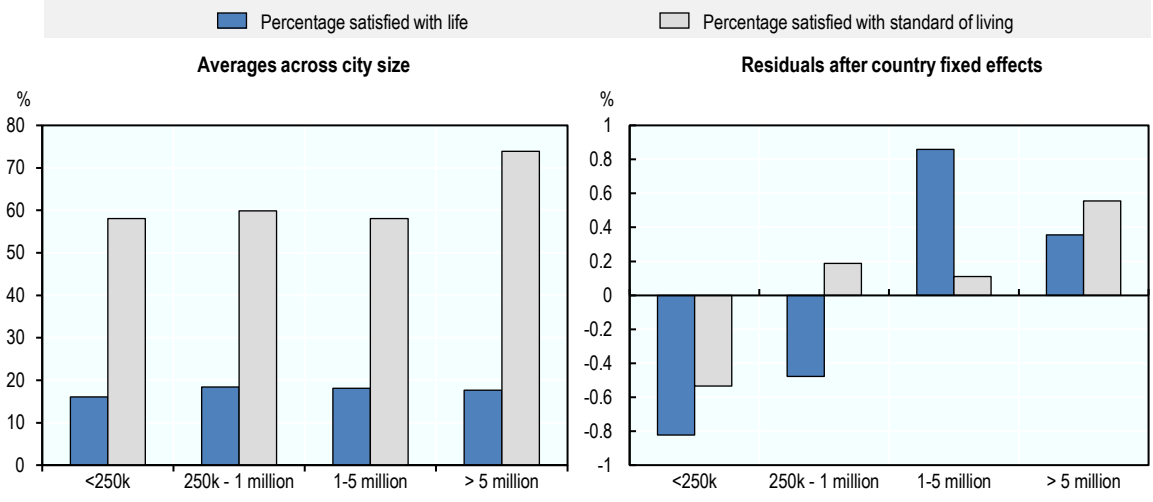
Higher satisfaction with the quality of life in cities could partly explain the growth of cities (especially large ones) across the globe. The population growth of cities can occur both due to natural population growth in cities as well as due to migration, i.e. population movements towards urban settlements. Fertility rates tend to decline in cities, relative to rural areas. In all world regions, apart from Sub-Saharan Africa, fertility rates in cities converge towards the natural replacement rate (see Chapter 4). Therefore, migration appears to explain a considerable part of cities' growth, in particular outside of the developing world (International Organization for Migration, 2015[15]).

Geographic differences in both current and anticipated life satisfaction appear to be associated with urbanisation patterns across countries between 2000 and 2015. Lower levels of optimism about future life satisfaction in rural areas are significantly correlated with population growth of cities, even when countries' level of development is taken into account. Countries that recorded significantly larger population growth of cities between 2000 and 2015 also reported rural-city gaps in anticipated life satisfaction.[6] Furthermore, the population of towns and semi-dense areas grew more rapidly during that same period in countries where life satisfaction in TSAs was high relative to cities or rural areas.[7]

Life satisfaction does not only vary across the degree of urbanisation but also metropolitan areas of different sizes. The larger a metropolitan area, the more satisfied with their life and standard of living the residents appear to be. Figure 2.3 shows the different levels of life satisfaction and standard of living for different size classes of metropolitan areas. For standard of living, size matters: the percentage of people satisfied with their standard of living increases with metropolitan size. Around 58% of residents report being satisfied with the standard of living in metropolitan areas with less than 250 000 inhabitants, compared to 74% of resident in metropolitan areas larger than 5 million inhabitants (left panel of Figure 2.3). When country-specific characteristics that might affect both life satisfaction and metropolitan area size are taken into account, the pattern becomes clearer (right panel of Figure 2.3). With increasing size, life satisfaction and satisfaction with living standards rise.[8]

Figure 2.3. Life satisfaction and living standards by the size of metropolitan areas

Average differences in percentage across the size of metropolitan areas and residuals after controlling for country fixed effects



Note: The left figure displays the averages in life satisfaction and satisfaction with living standards by size class of metropolitan areas. The right figure presents residuals in life satisfaction and living standards after controlling for country fixed effects. Standard of living reports the expressed satisfaction with the standard of living conditions.
Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

What explains differences in quality of life?

In the following sections, this chapter analyses various dimensions of well-being that might explain the differences in life satisfaction across the degree of urbanisation. Until recently, data limitations inhibited an international assessment of differences in life satisfaction, well-being measures and perception between residents of different types of settlements. Two novel sources analysed in this chapter help fill this void, the Gallup World Poll and Demographic and Health Surveys (DHS) (see Box 2.1).

Box 2.1. Data for differences in quality of life by degree of urbanisation

The newly available classification of Gallup World Poll data by degree of urbanisation offers unprecedented opportunities for analysing differences in well-being between cities and other areas around the world. Based on geo-coded information of respondents' location, the classification provides aggregate statistics for the 3 degrees of urbanisation for more than 100 countries from different regions around the world. Due to the nature of the data, relatively few Western high-income countries are part of the sample.[9] Instead, a majority of the sample consists of middle-income countries. The final sample consists of 111 countries.[10]

To gauge and quantify spatial differences in socio-economic outcomes in more detail, this chapter also studies highly policy-relevant indicators related to access to services, health, educational attainment, and domestic violence for 41 developing countries based on the Demographic and Health Surveys (DHS).[11,12] The DHS offer granular geographic cross-country information on health and population, which is not available in developed countries. The countries included in the analysis span across four regions: Sub-Saharan Africa, Latin America and the Caribbean, Southeast Asia and South Asia.[13]

Using these data sources, the analysis in the rest of this chapter focuses on five broad topics that constitute important aspects of quality of life. First, it examines income, economic opportunities and employment across the degree of urbanisation. Second, it analyses educational attainment and schooling. Third, it assesses differences in health outcomes and access to healthcare. Fourth, it sheds light on people's access to services and utilities in each degree of urbanisation. Finally, the chapter presents evidence on residents' exposure to crime and violence.

In analysing these well-being dimensions across the degree of urbanisation, the chapter explores the role of individuals' expectations in shaping their satisfaction and reported quality of life by juxtaposing perception-based outcomes with objective socio-economic outcomes. While differentials across space in socio-economic outcomes might reflect local conditions, some differentials might arise due to sorting, i.e. inherent differences between the population of cities and other areas. To account for sorting, the analysis presented in this chapter includes results from regressions that take into account individual and household characteristics.

Income, economic opportunities and employment

While living in a city can come with many benefits such as better employment opportunities or higher wages, residents in cities also face higher costs such as living expenses or higher rent. Consequently, the agglomeration benefits which residents of larger cities enjoy can be, at least partly, offset by those higher costs (Ahrend and Lembcke, 2016[16]). However, the overwhelming evidence from middle-income and especially developing countries suggests that cities offer higher real incomes than rural areas (Gollin, Kirchberger and Lagakos, 2019[3]). Due to these real income differences, rural residents in developing countries might stand to benefit from migrating to cities but very large moving costs prevent many from

doing so and also explain why the gap for real incomes has not been closed (Bryan and Morten, 2019[17]; Tombe and Zhu, 2019[18]). Those moving costs include financial considerations but also uncertainty as well as the loss of social networks.

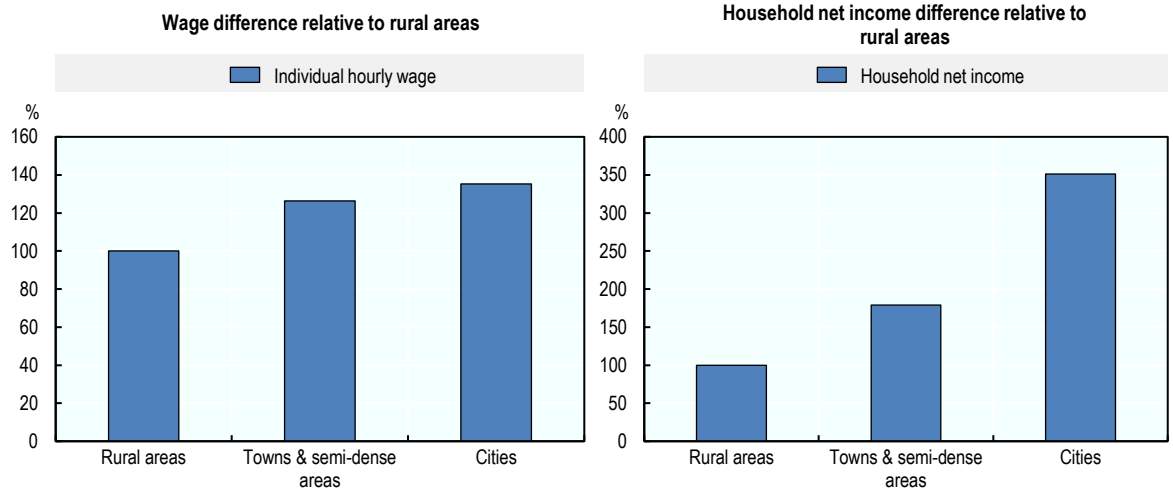
Cities and towns and semi-dense areas offer large income premiums

An analysis of 6 African countries, home to more than 430 million people, based on the definition of degree of urbanisation, highlights that nominal wage and income premiums seem to be substantial in more densely populated areas. Residents and households in cities and towns and semi-dense areas benefit from significantly higher wages and much higher income levels compared to rural areas (Figure 2.4). Individual wages are 26% higher in towns and semi-dense areas (TSAs) and 35% higher in cities relative to rural areas. Most people in rural areas in developing countries do not work for wages or are self-employed (see next section) but those who do earn less than their peers in cities or TSAs. Since living costs are likely to be higher in cities and TSAs than rural areas, the real wage differences will be lower than the differences reported here.[14]

The economic benefits of living in densely populated places are even more striking for total household income, which combines income from self-employment, labour, capital and land. In cities, households have income levels more than two and a half times higher than households in rural areas do. Moving down the degree of urbanisation, the income premium falls markedly but remains very high. In TSAs, household incomes are almost 80% higher than in rural areas. The large premiums in nominal household incomes in cities is likely to derive from four factors. First, household income includes earnings from capital and land and thus extends beyond wage income. Second, in cities, it is more likely that both partners in a household find paid work. Third, if they find paid work, it is better paid and likely to consist of more working hours. Fourth, the cost of living is higher in cities, which requires higher nominal incomes but reduces the overall city premium in real terms.

Figure 2.4. Wage and income differences across the degree of urbanisation in Africa

Relative differences between cities and towns and semi-dense areas to rural areas



Note: Wages and income in rural areas are the baseline and are set to 100%. The wage differences are based on regression results and control for country and survey year fixed effects. The six countries included are Ethiopia, Ghana, Malawi, Nigeria, Tanzania and Uganda. Wage data include wages from paid labour.

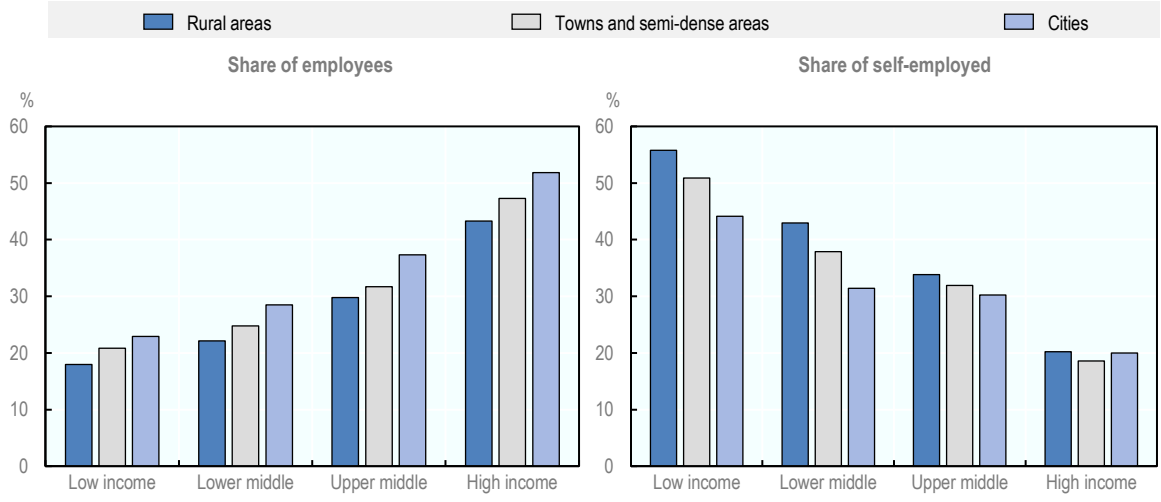
Source: Calculations following the work of Henderson, J., S. Kriticos and D. Nigmatulina (2019[5]), "Measuring urban economic density", *CEP Discussion Papers*, extending it to the degree of urbanisation based on the GHSL and the Living Standards Measurement Study data of the World Bank.

The large differences across the degree of urbanisation provide strong economic pull factors of cities, and towns and semi-dense areas in Africa, which might help explain rapid urbanisation in the region. Furthermore, such significant income premiums could directly enhance life satisfaction. Differences in the locally present industries and the types of jobs available to residents are likely to be factors that cause higher wages and income in cities and towns and semi-dense areas. However, even after taking into account such differences, wages and incomes remain substantially higher in more densely populated places (Henderson, Kriticos and Nigmatulina, 2019[5]).

Employment opportunities follow a clear urban gradient

Regular employment opportunities are significantly more common in cities than elsewhere. Residents in cities more often work for employers, while self-employment is more frequent in rural areas (Figure 2.5). In general, both the share of employees and the share of self-employed follow clear gradients along the degree of urbanisation. While those patterns are apparent in all country income classes, the shares of employment and self-employment vary substantially by income level. For example, self-employment in rural areas reaches more than 55% in low-income countries compared to only 20% in high-income countries. The reliance on self-employment is particularly high in rural areas of Sub-Saharan Africa, Asia and the East Pacific. To some degree, the high rate of self-employment reflects the dominance of agriculture in many rural areas of the world, and especially in low-income countries with reliance on agriculture.[15] However, self-employment remains significantly higher in rural areas than in cities even when the contribution of agriculture to national GDP is taken into account, which reveals a lack of alternative economic opportunities in modern manufacturing, for example, in rural areas compared to TSAs or cities.

Figure 2.5. Employment and self-employment by the degree of urbanisation and income level



Note: The figure presents simple averages by degree of urbanisation and income group.
Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

More densely populated places offer better economic mobility

A common assumption explaining the surge of domestic migration towards cities is the greater availability of economic opportunities in densely populated places. Cities benefit from economies of agglomeration that arise from a concentration of physical capital, firms, consumers and workers and make cities more productive with greater job opportunities for residents (Ahrend et al., 2017[19]). The lure of more and

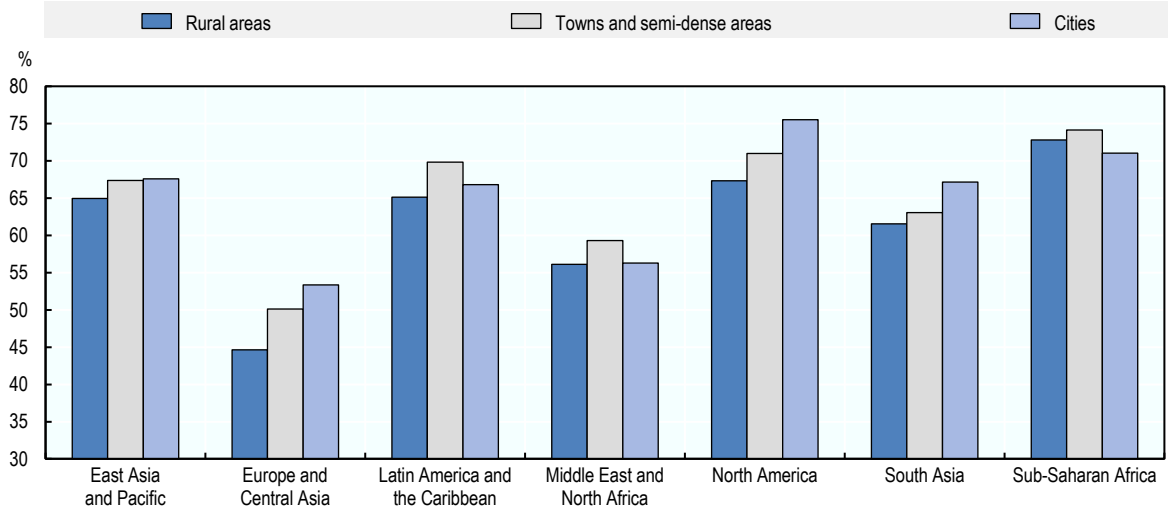
different kinds of jobs, as well as higher wages, underpins the attractiveness of cities, which promise to offer higher economic and thus social mobility. The Gallup World Poll data by the degree of urbanisation for 111 countries appear to confirm this assumption; cities appear to offer their residents the conditions to improve their living standards. The share of the population feeling that their standard of living is getting better is largest in cities and, at 48.0%, is 2.8 percentage points higher than in rural areas.

The gap between rural areas and cities is most pronounced in Sub-Saharan Africa and South Asia, particularly in very poor countries such as the Republic of the Congo, the Democratic Republic of the Congo or South Sudan. In contrast, TSAs perform best in Latin America and the Middle East and North Africa when it comes to improving living conditions. In those regions, countries such as Argentina, Brazil and Lebanon, with significantly lower housing affordability and availability in cities, also fare the worst in terms of improved living standards in cities, with 24%-42% lower values than in rural areas or TSAs.

Local conditions for starting a business offer a pathway for economic mobility. On average, they mostly do not differ significantly between the degrees of urbanisation (Figure 2.6). However, some countries display very high differences in entrepreneurship-friendly local conditions. Especially, rural areas in countries in Eastern Europe and Central Asia struggle to provide adequate conditions for business creations. Compared to rural areas, the share of residents in cities believing that their area is a good place to start a business is 20-30 percentage points higher in Bulgaria, Lithuania, Poland or Russia. In contrast, in Argentina and Bosnia-Herzegovina, rural residents perceive entrepreneurship conditions more favourably.

Figure 2.6. Local conditions for starting a business

Share of respondents who state the local conditions for starting a business are good



Note: Individuals are asked whether the city or area where they live is a good place or not a good place to live for people starting new businesses.
Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

Educational attainment and schooling

Higher income levels and better economic opportunities are not the only aspects that could explain higher life satisfaction in cities and towns and semi-dense areas compared to rural areas. Education is an important determinant for socio-economic mobility (Card, 1999[20]), as it is a decisive factor in enabling people to find employment, contribute to the economy and move up the socio-economic ladder in one's society. A lack of access to (quality) education in early lives can have a lasting impact on individuals'

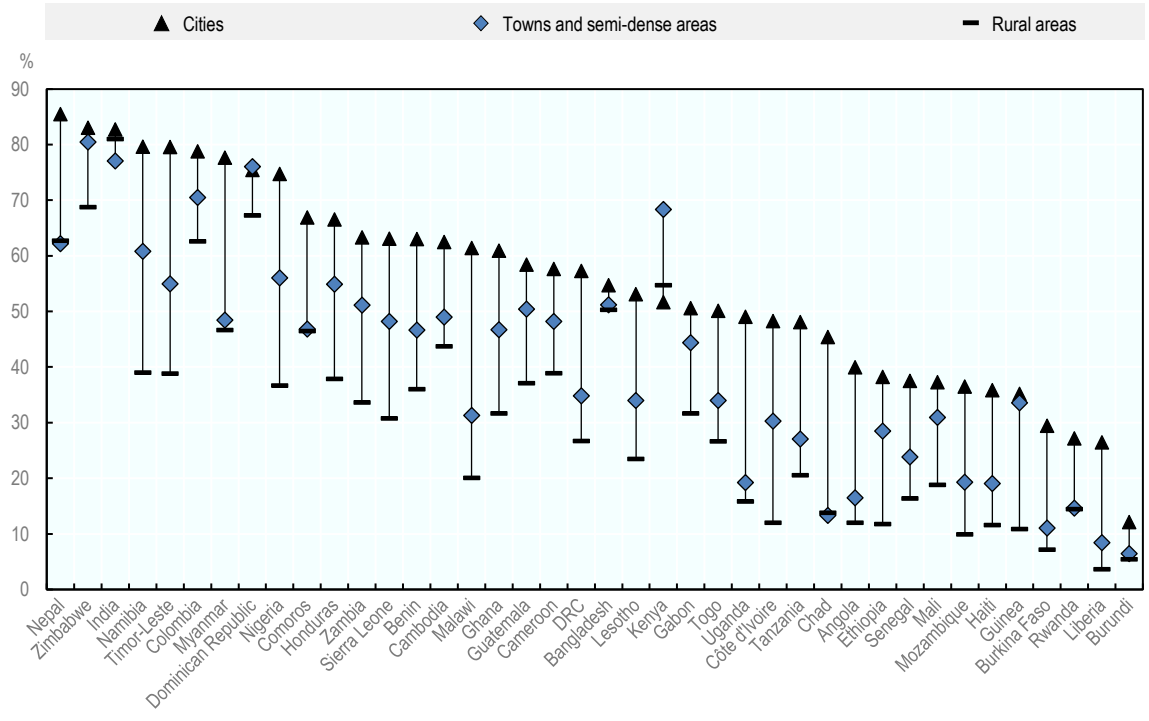
welfare (Heckman, 2006[21]). Educational opportunities can be an even greater policy issue if they vary spatially with some children growing up in a disadvantaged area, city or region. The data from the Gallup World Poll and DHS can shed light on differences in educational opportunities along the degree of urbanisation.

Educational attainment follows a clear urban gradient

Across the world, educational attainment is significantly higher in cities than in towns and semi-dense areas, which in turn is higher than in rural areas. In rural areas, 52% of individuals have 8 or fewer years of schooling compared to 34% in towns and semi-dense areas and 28% in cities. In contrast, tertiary degrees are more common in more densely populated areas. While less than 7% of rural residents have university degrees (or 4-year post-secondary education), 13% of residents in TSAs do. In cities, the share of residents with tertiary education reaches 17%.

For the subsample of 40 developing countries, the differences in educational attainment are even more striking. On average, the share of 16-year-olds who have completed at least 8 years of schooling is around 20 percentage points higher in cities than in rural areas (Figure 2.7). This pattern is apparent in all regions except for South Asia, where there is virtually no difference between educational attainment in cities and rural areas, and where educational attainment of residents is actually higher in rural areas than in TSAs. Sorting – differences in observable characteristics of individuals and households across the degree of urbanisation – matters but does not explain most of the observed geographic disparities. Consequently, public policies that affect the supply of educational opportunities are likely to be important drivers of geographic differences in educational attainment.

Figure 2.7. Share of 16-year-olds with at least 8 years of schooling



Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

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Cities clearly seem to offer much better educational opportunities than other areas. Especially in Sub-Saharan Africa, educational attainment is significantly higher in cities, as rural areas record 8-year completion rates below 30% whereas cities surpass 50%. Even in Latin America and Southeast Asia, where 8-year completion rates exceed 70% in cities, less than half of the 16-year-olds in rural areas have completed 8 years of schooling. In Sub-Saharan Africa, part of the reason children do not complete Grade 8 by age 16 is that many 12- and 13-year-old children have still not completed even Grade 4. This suggests two things: earlier years in school were marked by lack of completion of the grade, and likely by low attendance; they attend but do not finish grades.

Over the last 15 years, educational attainment has improved significantly. The fraction of 16-year-old children who have completed 8 years of schooling increased in all degrees of urbanisation by 10 to 20 percentage points in Sub-Saharan Africa and by 20-30 percentage points in our South Asian sample. Within regions, however, the rural-city differential in Sub-Saharan Africa of 20 points in 2000 increased to over 25 percentage points in 2015. In contrast, in South Asia, that rural-city gap fell remarkably from almost 30 points, such that today rural and city rates of education are almost the same. Bangladesh and Nepal have made great strides in increasing especially rural education.

Perception of quality of schools in rural areas is more positive than actual outcomes

Perceptions of educational opportunities of children are more positive in rural areas but this stands in contrast to actual educational attainment and likely reflects lower expectations. Overall, residents in rural areas in East Asia and the Pacific have the highest faith in educational opportunities of children in their country. 87.5% believe that most children in their country have the opportunity to learn and grow every day. At the other side of the spectrum, only 54.3% of people in cities in the Middle East and North Africa have a favourable opinion about children's educational opportunities. Globally, negative views about children's educational opportunities are most common in cities, with towns and semi-dense areas and rural areas performing comparably in this regard.

Rather than disclosing better educational opportunities in rural areas, the observed pattern might indicate higher expectations of city residents with respect to the education system. For example, large within-country differences are most striking in Latin America and the Caribbean, where positive views about children's opportunities to learn and grow are 8 to 9 percentage points lower in cities than in the rest of the country even though rural areas are unlikely to benefit from better schools or funding for education. As documented in Figure 2.7, rural areas, in fact, record significantly lower educational attainment than cities in Latin America and the Caribbean. The share of 16-year-olds with at least 8 years of education is almost twice as high in cities (54%) than in rural areas (28%). A similar rural-city discrepancy is observable in Sub-Saharan Africa and Southeast Asia, suggesting that more favourable subjective assessment in rural areas might be due to a lack of experience with or missing exposure to educational opportunities.

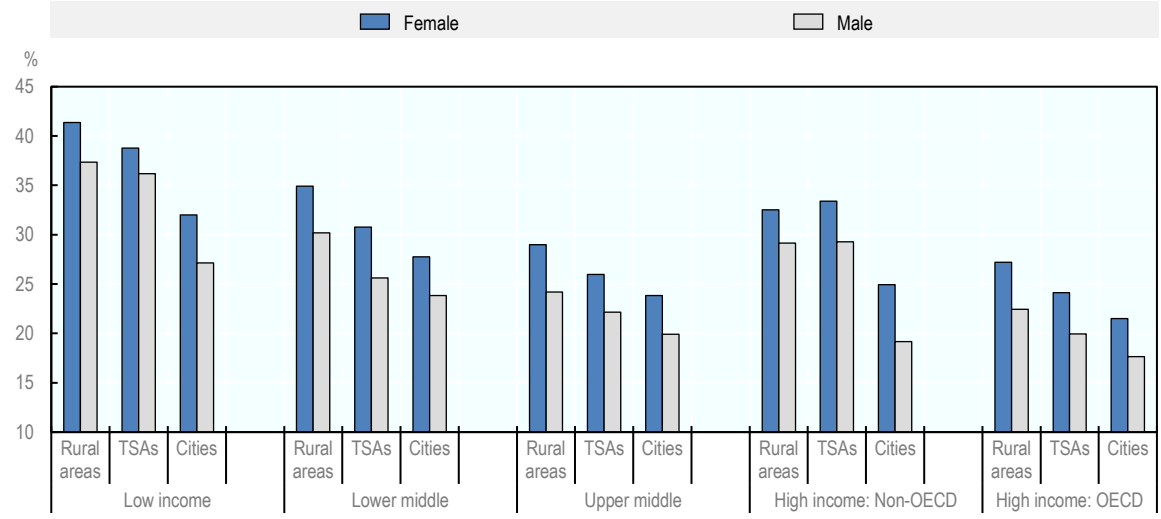
Health outcomes

Health outcomes vary substantially by gender across the degrees of urbanisation

Outcomes on health, a key element of individual well-being (Boarini, Murtin and Schreyer, 2015[24]), reveal strong city-rural discrepancies. In terms of self-reported health outcomes, there is a clear gradient across the degrees of urbanisation (Figure 2.8). On average, more than 31% of residents of rural areas reported suffering from health problems that prevent them from doing things people their age normally do. Around 28% of residents in towns and semi-dense areas reported such health issues. In comparison, city residents appear to be significantly less likely to have health problems, with less than a quarter (24.6%) reporting significant health issues.

Across all degrees of urbanisation, there is a clear distinction in terms of gender: women report suffering significantly more from health problems than men (Figure 2.8). This gender health difference appears highest in Europe and Central Asia as well as the United States (US), where women in rural areas and TSAs state to fare considerably worse than men. Overall, the gap between rural areas on the one hand and cities on the other is especially large in the US and Sub-Saharan Africa, where the likelihood to report health problem is 15 and 11 percentage points respectively, higher in rural areas than in cities. These spatial differences cannot simply be explained by different age profiles or educational attainment of residents across the degree of urbanisation.

Figure 2.8. Health problems by gender in cities, TSAs and rural areas



Note: Share of residents who report having significant health problems. TSAs denote towns and semi-dense areas.
Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by EC and OECD, 2019.

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Among cities, health problems tend to be worse in those countries that have a very large as well as rising urban population and that have experienced rapid economic growth. For example, in Bangladesh, China or Indonesia, health problems are 41%, 36%, and 31% more likely in cities than in rural areas. The share of people living in cities (or urban centres) has reached 41% in China (compared to 29% in 1975), 54% in Bangladesh (compared to 18% in 1975) and even 57% in Indonesia (compared to 47% in 1975). At the same time, the GDP per capita in those 3 countries multiplied by a factor of 28 (China), 5 (Indonesia) and 4 (Bangladesh) between 1975 and 2018.

Despite a greater propensity of rural residents to have health problems, satisfaction with health services does not substantially differ across the degrees of urbanisation, highlighting the role of expectations in shaping perception measures. There are only marginal differences between cities and rural areas across all regions of the world, apart from South Asia where city residents are 30% more likely to be satisfied with the availability of healthcare in their area. Overall, residents of towns and semi-dense areas express the highest level of satisfaction (52%) with the availability of quality health services. However, measures of actual access to health services vary enormously (see below section on women's access to health services), with much lower levels in rural areas, indicating that local satisfaction is strongly shaped by expectations.

In developing countries, rural areas are catching up on health outcomes

Health outcomes such as infant mortality, diarrhoea among children and vaccinations are better in cities than in the countryside in developing countries. However, the discrepancies by the degree of urbanisation in all four regions considered (Sub-Saharan Africa, Latin America and the Caribbean, South Asia and Southeast Asia) are more modest when differences in the characteristics of the local population are taken into account. A second set of health outcomes shows a consistent urban penalty, demonstrating that some health aspects in developing countries deteriorate in cities compared to rural areas.

Health outcomes offer a good indication of living conditions, including access to health services and other public services. Thus, they help to highlight and quantify to what extent living conditions differ across the degree of urbanisation in the developing world. However, sorting, inherent differences in the composition of the population of different areas in terms of education etc. can cause spatial differences in health outcomes by affecting the information on and use of health services. This section additionally examines how such sorting influences geographic differences in health outcomes.

Core child health outcomes

Infant mortality and diarrhoea rates display the expected urban gradient, with better outcomes in cities, followed by towns & semi-dense areas (TSAs), and worst outcomes in rural areas. However, the differentials across rural areas, TSAs and cities are generally not large. Per thousand live births, infant mortality is 5-10 deaths higher in rural areas than in cities (Figure 2.9). The rural-city gap is largest in lower-middle-income countries, where less than 38 children per 1 000 live births do not survive to age 1 in cities, compared to 47 deaths per 1000 live births in rural areas. Overall child mortality rates range from 25 to 50 per 1000 live birth by world region, with Sub-Saharan Africa recording the largest mortality rates.

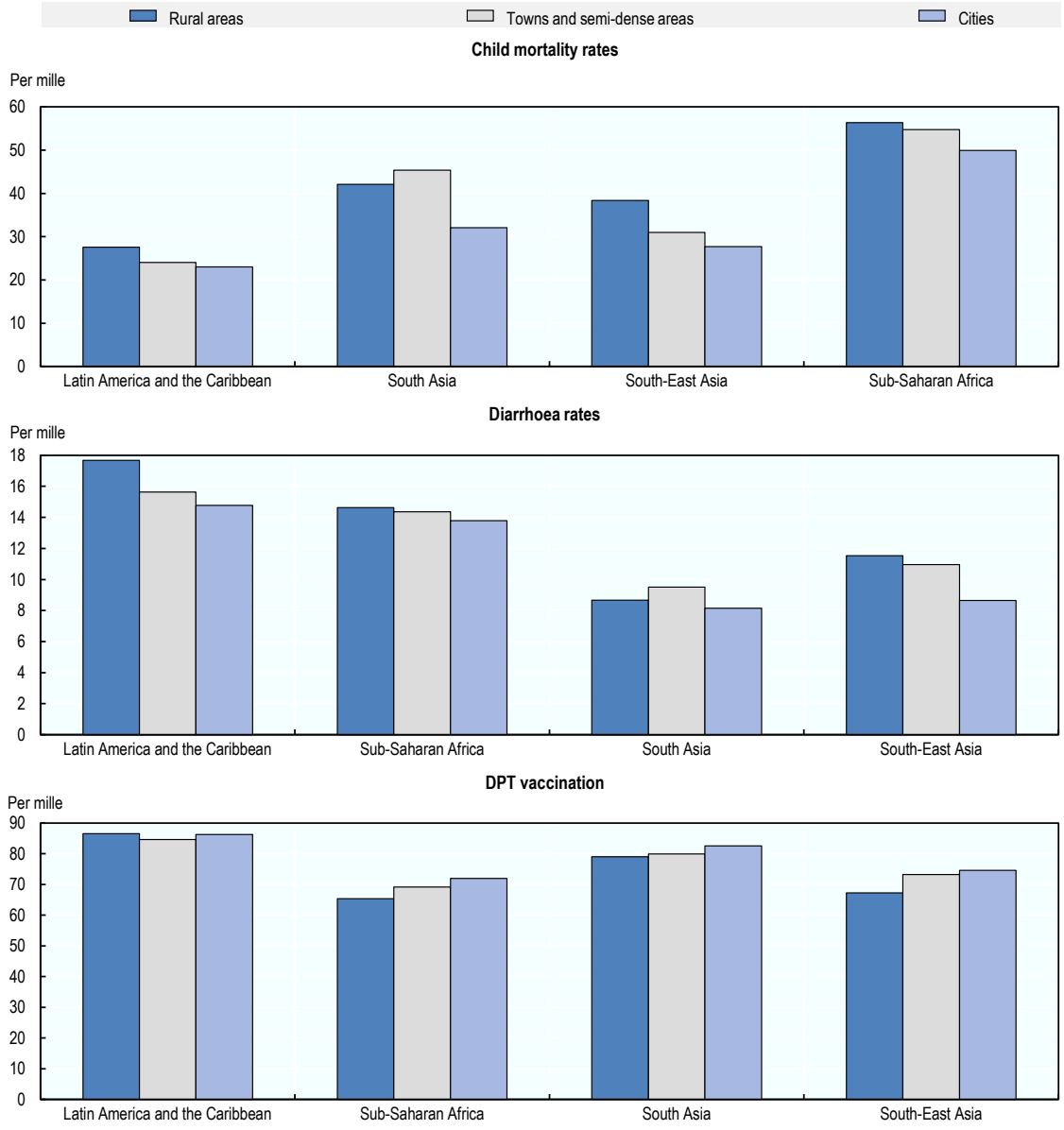
Compared to child mortality, geographic differences in diarrhoea rates and DPT (diphtheria, pertussis and tetanus) vaccination rates are relatively small, never exceeding a few percentage points (Figure 2.9). Both diarrhoea and DPT vaccination rates are health dimensions with noticeable inter-regional differentials, especially between Latin America and the Caribbean and Sub-Saharan Africa, but minuscule within-region differences between rural areas, TSAs and cities. The largest rural-city differences in diarrhoea rates exist in Latin America and Southeast Asia with around 3 percentage points higher rates in rural areas. In all four regions, national average DPT vaccination rates are high and geographic differences appear small, which might perhaps be due to large international vaccination campaigns.

Overall, diarrhoea rates mirror the patterns observed in access to utilities, especially improved sanitation, highlighting the fact that they are directly linked to water and sanitation infrastructure. Consequently, geographic disparities in terms of such infrastructure appear to lead to differences in the health outcomes of children. For example, in Sub-Saharan Africa and South Asia, improved sanitation is significantly associated with lower diarrhoea rates of children.[16] Consequently, children in cities who benefit from better provision of utilities are less at risk of health problems such as diarrhoea.

Even though geographic disparities persist, health outcomes have improved vastly and broadly along the degrees of urbanisation. Over the past 15 years, infant mortality as well as diarrhoea rates fell markedly while DPT vaccination increased further. For example, infant mortality fell in South Asian countries by about 50% in each type of area. Sub-Saharan Africa saw a similar drop close to 50% in rural areas and smaller but substantial decreases in cities and TSAs as well (Figure 2.10). Rates of diarrhoea fell less dramatically but still substantially, by about 5 percentage points across the degrees of urbanisation from previous rates of 8%-20%. DPT vaccinations rose by more than 15 percentage points in all areas from a starting point of about 50%-65%, with the largest gains occurring in urban areas. All of these developments demonstrate significantly improved healthcare and more information and awareness of available services even in less densely populated areas in the developing world.

Figure 2.9. Infant mortality, diarrhoea and DPT vaccination rates, by world regions and income classes

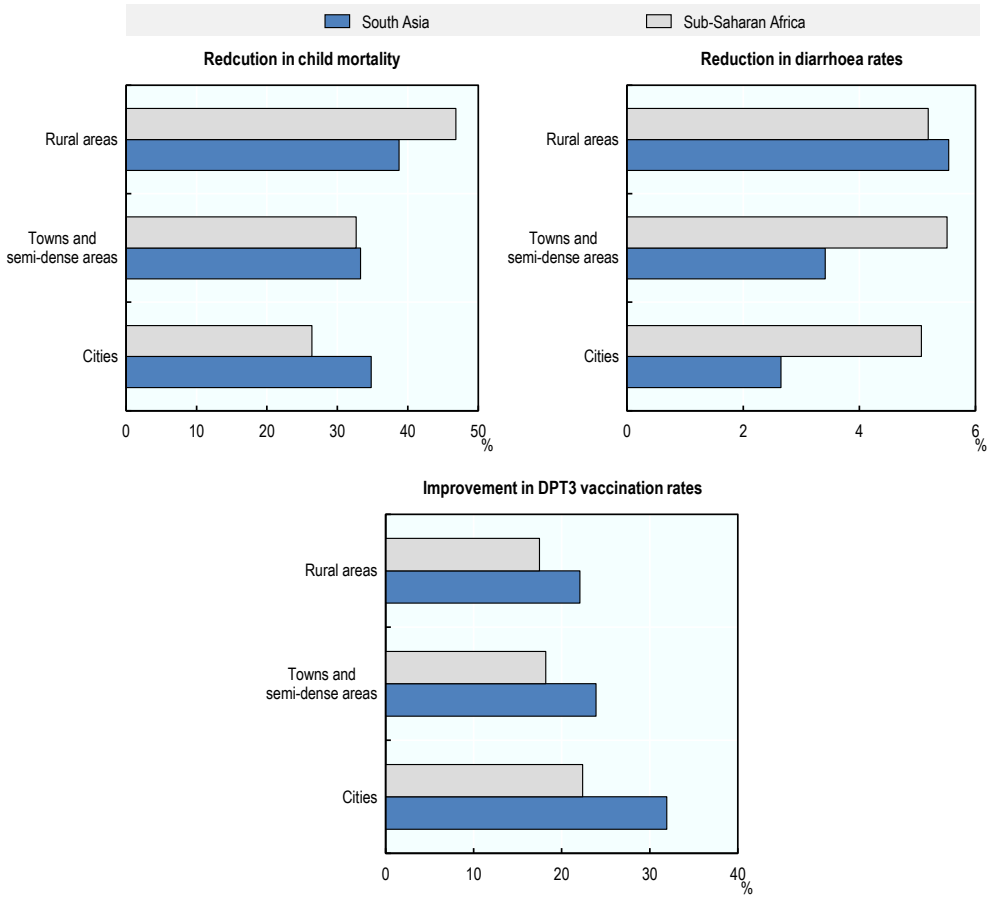
Differences by the degree of urbanisation



Note: Infant mortality rate is the share of children born in the 5 years before the survey that did not survive to age 1. The diarrhoea rate is the share of children under 5 experiencing diarrhoea in the past 2 weeks. DPT vaccination shows the share of children that received the third dose of DPT vaccine.

Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Figure 2.10. Relative changes (in percentage) in health outcomes, 2000-15, Sub-Saharan Africa and South Asia



Note: All changes present percentage reductions (child mortality, diarrhoea) or increases (DPT3 vaccination) between 2000 and 2015, with the averages in 2000 as the base rates. The infant mortality rate is the share of children born in the 5 years before the survey that did not survive to age 1. The diarrhoea rate is the share of children under 5 experiencing diarrhoea in the past 2 weeks. DPT vaccination shows the share of children that received the third dose of DPT vaccine.
Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Women's access to health services

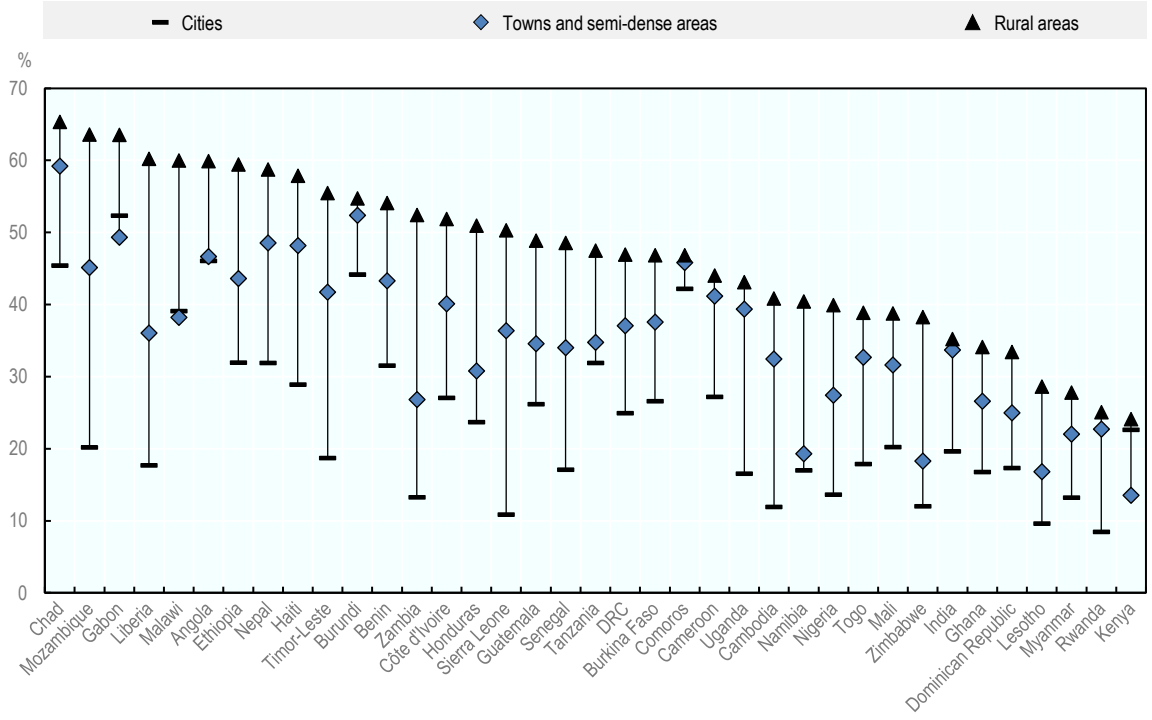
Access to medical services is a major impediment to better health outcomes in rural areas in developing countries, in particular for women. Two key factors prevent female residents, especially in rural areas, from using and benefitting from medical services. First, supply, i.e. the availability, of medical facilities is geographically concentrated in specific areas. Therefore, residents in many areas need to travel large distances to even reach such facilities. Second, women's permission to seek and exploit medical services at their disposal is often limited in developing countries.

In most developing countries, distance to medical facilities prevents better access to medical services. Consistent with cost minimisation in care provision, the share of women who report not using medical services due to distance is much lower in cities (Figure 2.11). On average, women in rural areas are twice as likely to report distance as an obstacle for seeking medical help as women in cities. In Cambodia, Liberia, Sierra Leone, Zambia and Zimbabwe, distance is three to four times more likely to be an impediment in rural areas than in cities. Requiring the permission of their partner or family is a second reported barrier to healthcare for women but its impact appears to be lower than geographic distance. On

average, 16% (in cities) to 21% (in rural areas) of women cite a lack of permission as a reason for not receiving medical services. In general, differences across the degree of urbanisation are relatively small, in particular in Africa and Latin America, where there are no distinguishable differences between women in cities, TSAs or rural areas.

Figure 2.11. Distance as an impediment to medical services

Women citing distance as a reason to not seek medical help



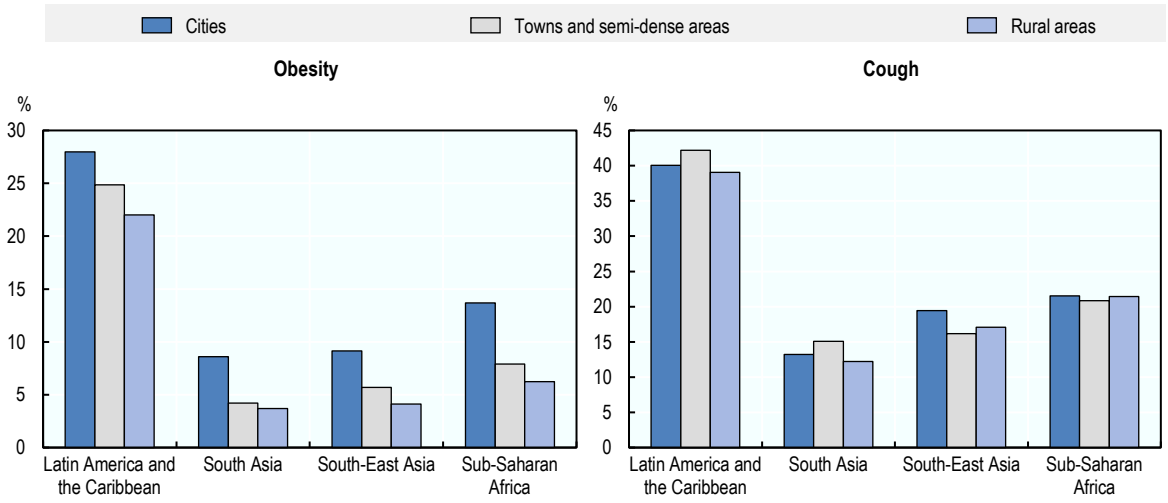
Note: Percentage of respondents, women aged 15-49, who did not go to a medical facility when sick. The indicator records the fraction of respondents reporting that distance was a big problem versus no problem or a small problem.
Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Health risks in cities

While cities afford their residents plenty of opportunities in terms of jobs and services, they are also prone to specific health risks and hazards that concentrate in urban environments. Air pollution, a lack of exercise or the abundance of unhealthy food are often associated with cities and lead to adverse health outcomes in various dimensions. Therefore, city residents are also likely to face "urban ills" that result from those health-deteriorating factors.

Among those urban ills, obesity especially shows more negative health outcomes in cities. Obesity rates are strikingly higher in cities than in both towns & semi-dense areas, and rural areas. In Sub-Saharan African and South Asian cities, residents are 2.3 times more likely to be obese than in rural areas (Figure 2.12). Across all four world regions, obesity increases with population density. Cities also report slightly higher rates of children's cough than rural areas in all regions. Even though these differences appear small, they are statistically significant in a regression framework even when controlling for sorting.[17]

Figure 2.12. Obesity and cough by region and degree of urbanisation



Note: The left panel displays the percentage of obese respondents, where obesity was defined as having a body mass index ≥ 30. The sample consists of household members that were 20-49 years old, eligible for the individual male and female surveys, and not pregnant. Data on obesity for the Angola 2015-16 survey was unavailable. The right panel shows the percentage of children aged 5 and under who have had a cough in the last 2 weeks.
Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Access to services and utilities

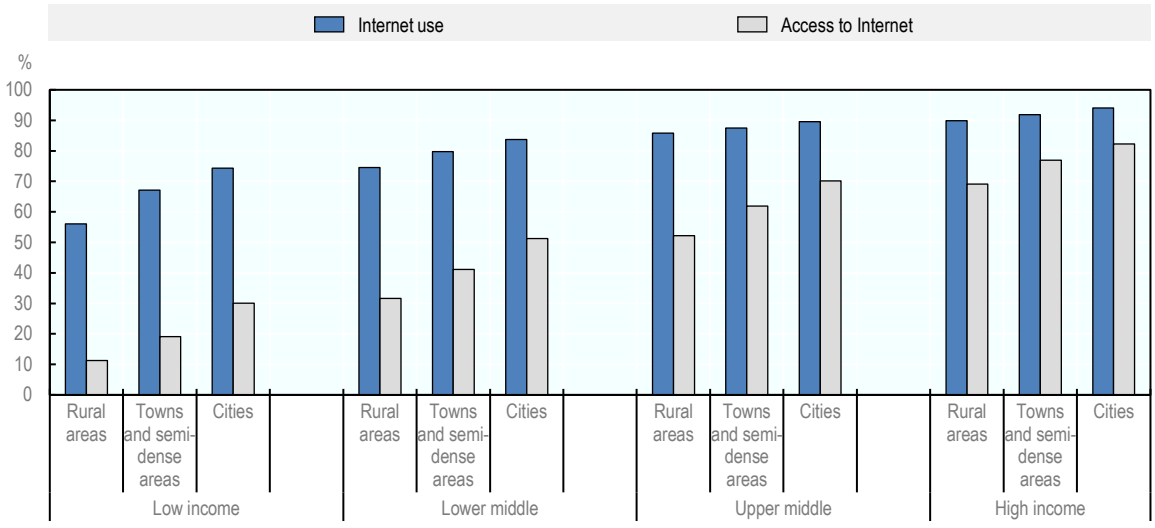
Location matters enormously for access to public infrastructure and modern technology

Across the world, the geographic concentration of satisfactory public infrastructure is highest in Sub-Saharan Africa and South Asia where the satisfaction with roads and highways ranges from 66% to 54% and 42% to 35%. Expectedly, highest satisfaction recorded in cities and lowest in rural areas. The geographic disparity in actual access to roads and highways is likely to be higher than suggested by satisfaction levels, again highlighting the role of expectations in shaping individuals' perceptions of local conditions.

Disparities in accessibility are even more striking in terms of digital infrastructure and modern technology (Figure 2.13). Across all four country income groups, Internet access follows a clear gradient. More residents in cities and TSAs have Internet access than in rural areas. Globally, the share of residents in cities with regular Internet access is almost 50% above that of rural residents. Unsurprisingly, the largest disparities exist in low-income and lower-middle-income countries. Recent use of the Internet, which is linked to SDG 17.8.1, is more common than regular Internet access and displays less geographic differences. Nonetheless, residents' Internet use still differs significantly by location in lower-middle- and low-income countries. For example, only 56% of rural residents had used the Internet over the past 7 days, compared to 67% and 74% of residents in TSAs and cities respectively.

Figure 2.13. Use and regular access to the Internet

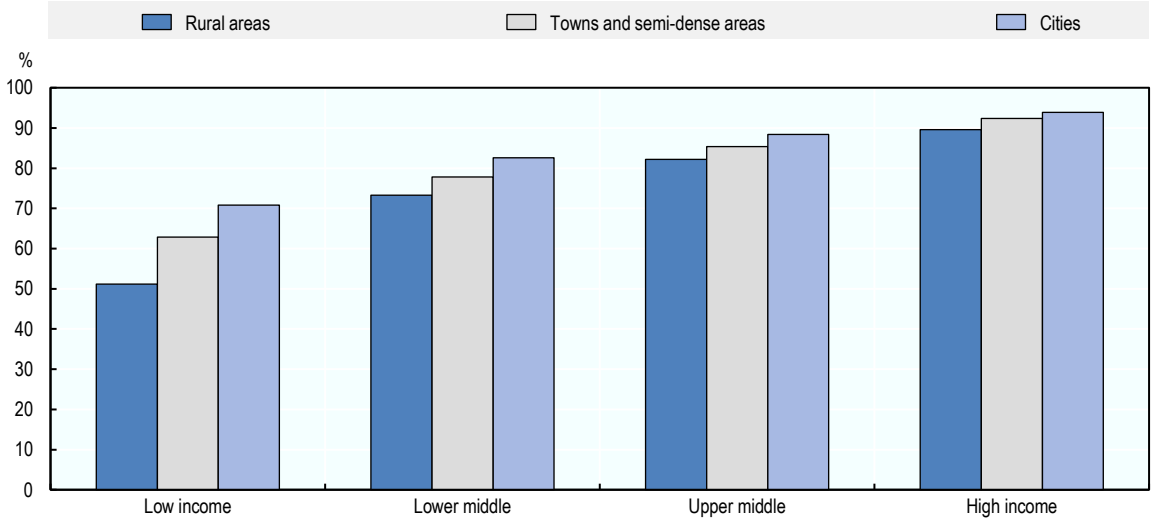
Shares of respondents who have used the Internet in the past seven days and who have regular Internet access



Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

Disparities by degree of urbanisation in low-income countries also exist with respect to mobile phones (SDG 5.b.1). Only around half of rural residents in low-income countries own a mobile phone compared to more than 60% of residents in TSAs and more than 70% of residents in cities (Figure 2.14). In more economically developed countries, the pervasive spread and low cost of mobile phones have led to almost full coverage of mobile phones among residents in all degrees of urbanisation.

Figure 2.14. Share of individuals that have a mobile phone



Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

Lower access to infrastructure and modern technology in rural areas is a pressing issue due to its relevance for existing as well as emerging policy challenges. Demographic and environmental changes create new obstacles to providing public services and infrastructure in all territories. In many OECD countries, for instance, ageing fundamentally alters the demographic and social fabric of regions and cities (OECD, 2019[25]). Consequently, providing access to services will become a formidable challenge for policymakers, especially in sparsely populated areas that already experience lower levels of service provision. Leveraging the opportunities that digitalisation offers can mitigate such problems, especially in remote areas (OECD, 2018[26]). Furthermore, quality digital infrastructure promises to create new job opportunities and might increase productivity. However, taking advantage of those opportunities requires adequate infrastructure in terms of modern technology such as high-speed Internet connections.

Accessibility is a policy challenge that extends beyond OECD countries. Geographic discrepancies in accessibility appear exacerbated in countries with even larger economic differences between cities and the rest of the respective country. The next section examines in more detail these differences by the degree of urbanisation, shedding light on access to utilities in 40 developing countries.

In developing countries, city residents benefit from substantially better provision of public services

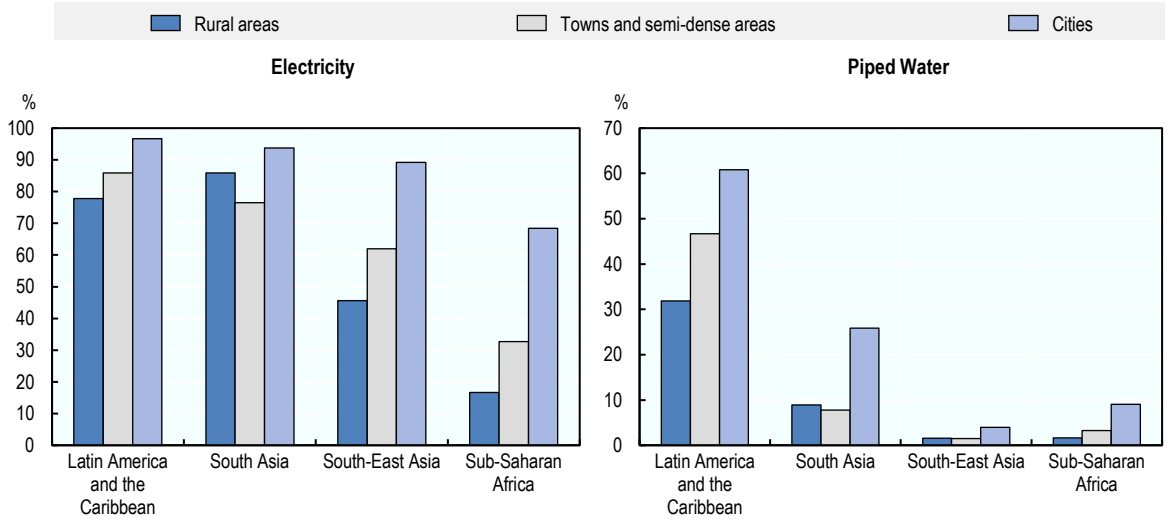
Across all four world regions (Sub-Saharan Africa, Latin America and the Caribbean, South Asia and Southeast Asia), the provision of utilities is consistently and significantly better in cities than in rural areas. Overall, there is clear gradient in utilities along the degree of urbanisation, with residents in towns & semi-dense areas having lower access to utilities than city residents but better access than rural residents. City-rural differences are particularly large for electrification rates, piped water and access to safely managed drinking water. However, most areas but especially rural areas have documented significant improvements in core utilities over the past 15 years that have a direct link to health outcomes.

While access to electricity is a requirement for many home-based amenities, electrification remains an area with very large rural-city differences in developing countries. Unsurprisingly, electrification is much more common in cities than in both towns & semi-dense areas (TSAs) as well as rural areas. On average, almost 75% of homes in cities have access to electricity, compared to 45% in TSAs and less than 31% in rural areas (Figure 2.15). The city-rural differentials in electrification are especially large in Sub-Saharan Africa and Southeast Asia, which also have the lowest average national rates. One exception to the observed gradient along the degree of urbanisation is South Asia, where electrification rates are almost 10 percentage points lower in TSAs than in rural areas. Similar to electrification, piped water is more common in cities everywhere but differences between rural areas and TSAs are generally small. The higher population density in cities reduces the per capita cost of providing the necessary infrastructure for utilities and might thus explain the observable geographic differences. While general availability of piped water is low in Sub-Saharan Africa and Southeast Asia, settlements in Latin America have a much higher uptake of piped water and also report a clear urban gradient. Households in Latin American cities are most likely to have piped water but households in TSAs also report a sizeable advantage over households in rural areas.

Broader categories of water-related utilities reveal a clearer picture of geographic disparities. Safely managed water, which includes protected wells or springs, boreholes, packaged water and rainwater, is not only more widely available in all four regions but differences across the degrees of urbanisation are also larger. On average, TSAs report more than 5 percentage points higher access to safely managed water than rural areas but still fall 10 percentage points short of the level of cities. Some of the largest within-country differences exist in Sub-Saharan African countries. For example, in the Ivory Coast, Malawi and Nigeria, rural areas display approximately 35 to 40 percentage points lower access to safe drinking water (Figure 2.16). Improved sanitation also follows the expected urban gradient, with large city-rural differences of at least 20 percentage points, and levels in TSAs levels slightly above those in rural areas.[18]

For Sub-Saharan Africa specifically, overall rates are lower than in other regions; and there are very large rural-city differentials. In particular, 40% and 70% of city households have respectively safe water or improved sanitation, while in rural areas the respective numbers are about 12% and 36%, under half of city rates.

Figure 2.15. Electricity and piped water across the degree of urbanisation



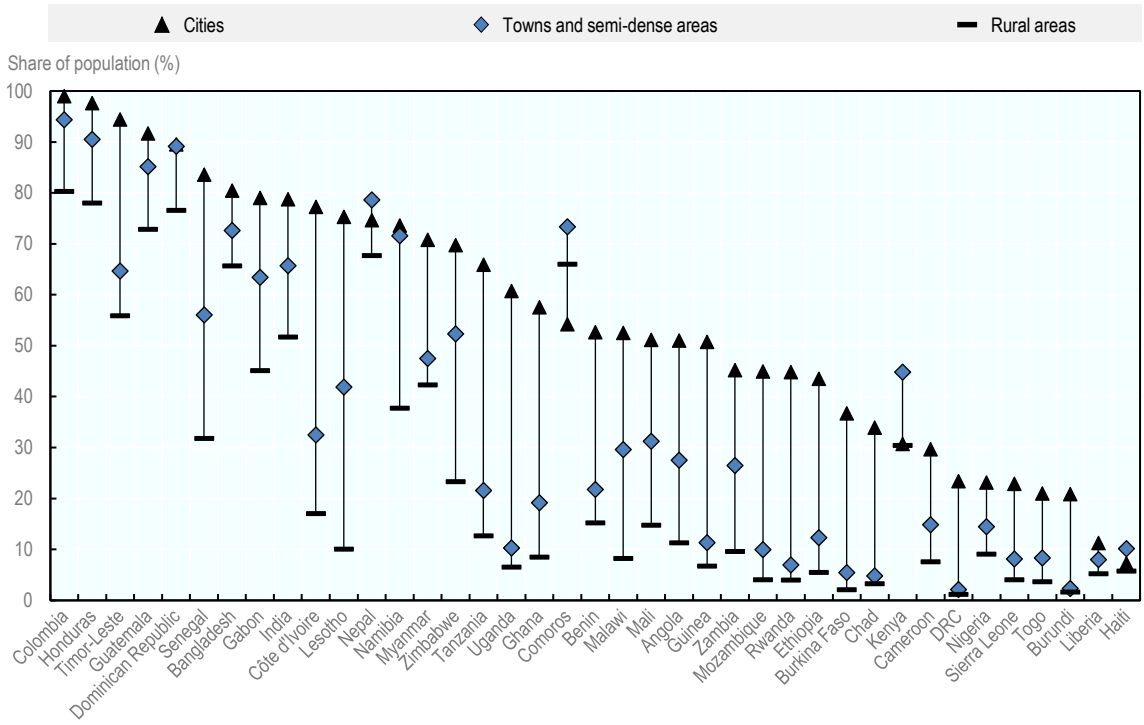
Note: Electricity refers to electricity in the household. Piped water refers to water piped into the respondent's house.
Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Over the past 15 years, the provision of utilities has improved dramatically in some countries but stagnated in others.[19] While residents in all degrees of urbanisation in South Asia enjoyed both improvements in electrification rates and piped water, the picture is more mixed in Sub-Saharan Africa. Electricity connections increased significantly in all degrees of urbanisation but most strikingly in rural areas. Rural electrification nearly doubled in Sub-Saharan Africa from initial rates of around 10% and almost quadrupled in South Asia, reaching nearly 60% in 2015. Interestingly, rural electrification even surpassed electrification in TSAs, suggesting that infrastructure investments in rural areas were significantly higher during that period.

In contrast to electrification, piped water penetration actually fell in cities in Sub-Saharan Africa and remained essentially unchanged in rural Africa. A potential explanation for the observed differences in changes over time in Sub-Saharan Africa is that new city residents moved to sites on the edge of cities that had been rural, with no infrastructure in 2000. In South Asia, all areas recorded improvements in piped water access. While the largest expansion took place in South Asian cities, rural areas recorded larger improvements than TSAs and now display a greater level of access to piped water. Consequently, Sub-Saharan African cities have faced a challenge of providing services to meet the needs of a rapidly growing population. Since piped water, which requires laying down water mains and often retrofitting, is more expensive to provide than extending electricity lines, electrification improved while access to piped water deteriorated.

Figure 2.16. Access to safely managed drinking water across the degree of urbanisation

Selected countries, 2010-16



Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Rural-city differences in public services are likely to have a significant impact on urbanisation. City residents often enjoy better public services because the provision of those services benefits from population density, which drastically lowers per capita costs. For example, in Sub-Saharan Africa many public-service-related outcomes appear to improve with density (Gollin, Kirchberger and Lagakos, 2019[3]). Furthermore, some cities enjoy a political advantage due to their status as national or regional capitals and thus receive more support for the provision of public services (Box 2.2). These advantages that lead to significant geographic differences in utilities or amenities can motivate rural-urban migration and thus lead to further growth of cities (Brueckner and Lall, 2015[27]). Previous work has documented that public services attract rural migrants to cities. For example, in Brazil, better public services such as water and sanitation are an important factor that, in addition to higher wages, draws people into bigger cities (Lall, Timmins and Yu, 2009[28]). The poorest might benefit the most from better public services and could thus be particularly attracted by cities despite higher living costs.

Box 2.2. The effect of city status on the provision of utilities

The administrative or political status of settlements influences the local provision of utilities. Across the world, the political status of a settlement, i.e. being a national or regional capital, affects socio-economic outcomes and explains a substantial portion of the differences between cities and intermediate-density areas (towns and semi-dense areas). In particular, being a national capital comes with advantages in terms of better sanitation, electricity and drinking water infrastructure.

Besides the importance of political status, the data also reveal that the administrative status of an area matters. Even when accounting for population density, whether a settlement is defined as urban in the national census matters. Areas with urban status benefit from significantly higher provision of utilities. Residents in areas that are considered urban according to national definitions have significantly higher access to improved sanitation, electricity and safely managed drinking water. One of the reasons why nationally defined urban places record higher access to services is that in some countries access to services is in fact part of the national definition of urban.

Note: The findings are based on regression results, included in Henderson et al. (2019[23]).
Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Crime, gender, violence, safety

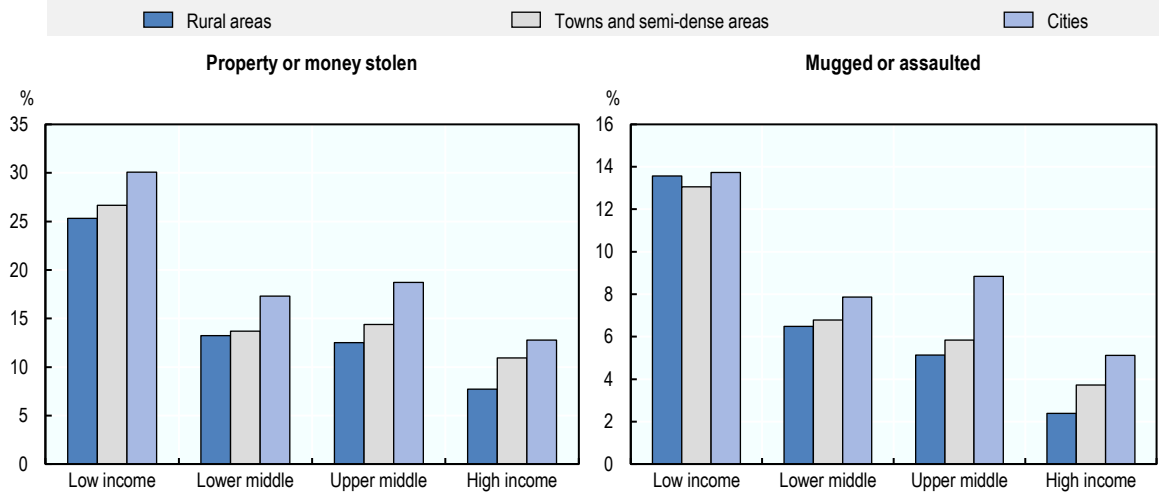
Crime is a more pressing concern in cities than elsewhere

Crime, violence and attitudes towards women directly influence people's daily lives and thus affect their quality of life. Similar to health outcomes, those important well-being dimensions vary a lot along the degrees of urbanisation, gender and countries' level of development.

Overall, residents in cities are most exposed to crime and violence. Across all income levels, the share of individuals whose property or money was stolen in the 12 months preceding the survey is at 19.9% highest in cities, followed by TSAs (16.3%) (left panel, Figure 2.17). Such crime occurs less often in rural areas (14.9%). Theft in cities is particularly high, relative to rural areas and TSAs, in upper-middle- and high-income countries. Similar to theft, city residents are also the ones most likely to get mugged or assaulted. While differences in mugging across the degree of urbanisation are negligible in low-income countries, they are significant in both middle- and high-income countries (right panel, Figure 2.17). Generally, the pattern again indicates the lowest assault levels in rural areas and intermediate levels in TSAs.

Figure 2.17. Theft and assault across the degree of urbanisation

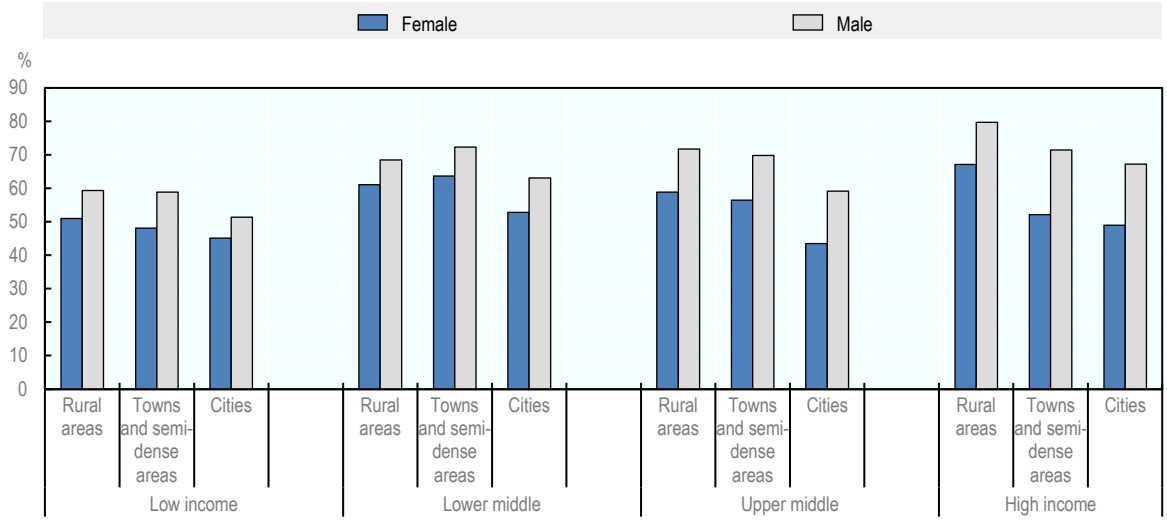
Shares of individuals who were victims of theft or mugging over the past 12 months



Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

When it comes to walking alone at night in one's local areas, which corresponds to SDG 16.1.4, however, city residents and especially women report the lowest safety levels. On average, 63.5% of rural residents, 59.7% of residents in TSAs and 52% of residents in cities feel safe walking alone at night. In all country income groups and degrees of urbanisation, women are significantly less likely to feel safe at night than men (Figure 2.18). The gender difference is highest in upper-middle-income and high-income countries, where the share of respondents reporting to feel safe walking alone at night is 10 to 20 percentage points lower for women than for men. The gender disparity in SDG 16.1.4 is also reflected in other aspects that have a direct negative impact on women's quality of life. On average, a lack of respectful treatment of women remains an important concern of residents across the degree of urbanisation in the world. Only 50%-70% of women believe that women are treated with respect in their local environment, and this share is lower in cities than in rural areas. This highlights that more needs to be done to achieve gender equality and empower all women and girls (SDG 5).

Figure 2.18. Share of men and women feeling safe walking alone at night



Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by EC and OECD, 2019.

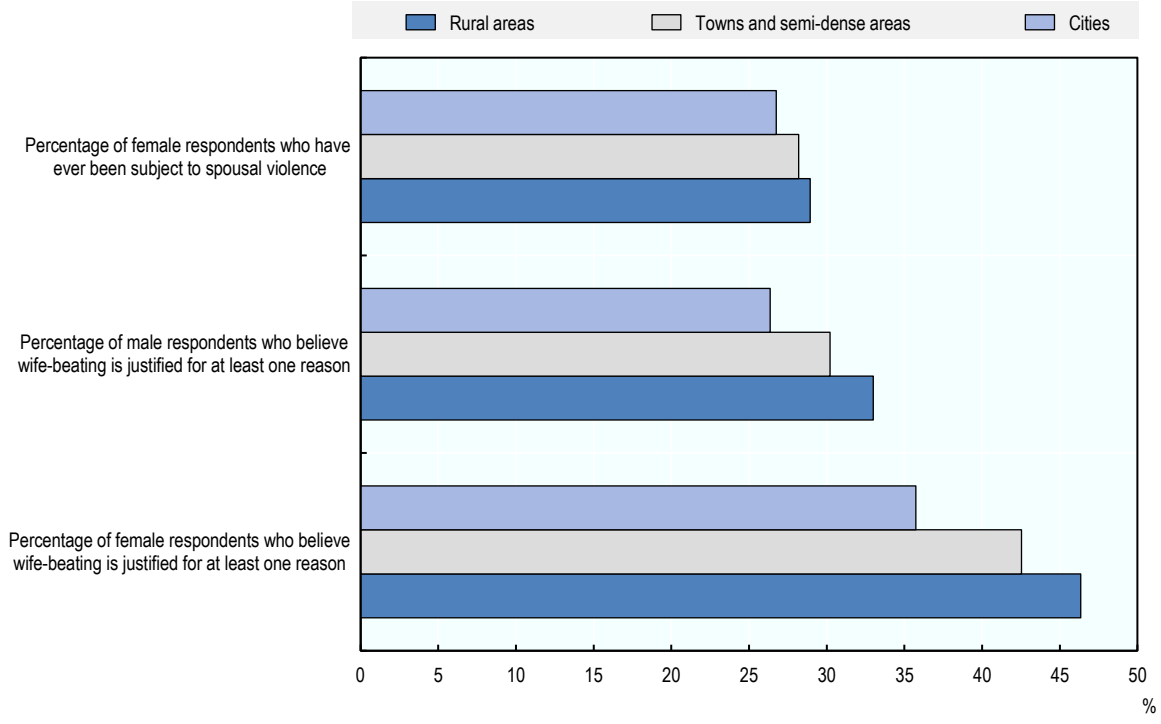
Acceptance of domestic violence against women is falling but geographic differences remain substantial

In developing countries, approximately 27% to 30% of married women have experienced spousal violence (Figure 2.19). While there are no discernible differences by the degree of urbanisation across country income groups, the regional experience of women differs. In Sub-Saharan Africa, South Asia and Southeast Asia, the share of women who experienced domestic violence is higher in rural areas than in cities. In Latin America, however, women in cities are much more likely to have experienced domestic violence than women in rural areas.

In contrast to reported domestic violence, acceptance of domestic violence remains substantially more common in rural areas than elsewhere. Compared to cities and towns and semi-dense areas, both women and men in rural areas are more likely to justify wife-beating (Figure 2.19). Surprisingly, more women than men think wife-beating is justified for at least one reason, which is particularly striking in rural areas and towns & semi-dense areas. Although Southeast Asia has the highest rates for beating being justified, it records the lowest reported actual domestic violence. In contrast, relatively more progressive attitudes towards domestic violence in Latin America do not translate into better outcomes.

Encouragingly, attitudes towards domestic violence appear to be changing in all degrees of urbanisation. In Sub-Saharan Africa, the only region with sufficient data availability to observe changes over time, acceptance of wife-beating fell substantially between 2000 and 2015. On average, acceptance of wife-beating dropped by over 20 percentage points for both men and women, from about 50% (men) and 70% (women) respectively in 2000. The remaining difference in attitudes towards domestic violence across the degree of urbanisation is in part driven by structural differences of rural and city populations. For example, the Sub-Saharan African city-rural and town-rural differentials in the share of women who think wife-beating is justified for any reason fall by 35%-50% when household characteristics such as age and education are accounted for. Similarly, in South Asia, the lower rates in cities compared to the countryside for both attitudes towards violence and experience of violence are both eliminated by sorting (see Henderson et al. (2019[23]) for more information).

Figure 2.19. Domestic violence by the degree of urbanisation



Source: DHS (2016[22]); Henderson, V. et al. (2019[23]), "Urbanisation and demographic and health outcomes: Perspectives from a new classification of urban areas".

Explaining differences in life satisfaction

As documented in the preceding sections, differences in key well-being dimensions across the degree of urbanisation can be considerable. The results suggest more favourable outcomes in key well-being dimensions in cities, albeit with notable exceptions. On average, quality of life appears to be best in cities and lowest in rural areas. Towns and semi-dense areas mostly fall in between cities and rural areas. However, the results are more nuanced when considering individual well-being dimensions.

Residents in cities have higher incomes and enjoy more economic opportunities. Even though not all benefit equally from this due to higher inequality and higher living costs in cities, on average city residents are better off economically. City residents also achieve the highest educational attainment, followed by residents in towns and semi-dense areas, with educational attainment in rural areas lagging behind. In

health, the picture is more mixed. In some health dimensions, cities and towns and semi-dense areas fare better than rural areas. However, cities are also prone to urban ills such as obesity, stress or air pollution. Access to public infrastructure, modern technology and public utilities all follow a clear urban gradient; the more densely populated the area, the better such access tends to be. In contrast, crime and security are greater issues in cities, except for domestic violence, which remains highest in rural areas.

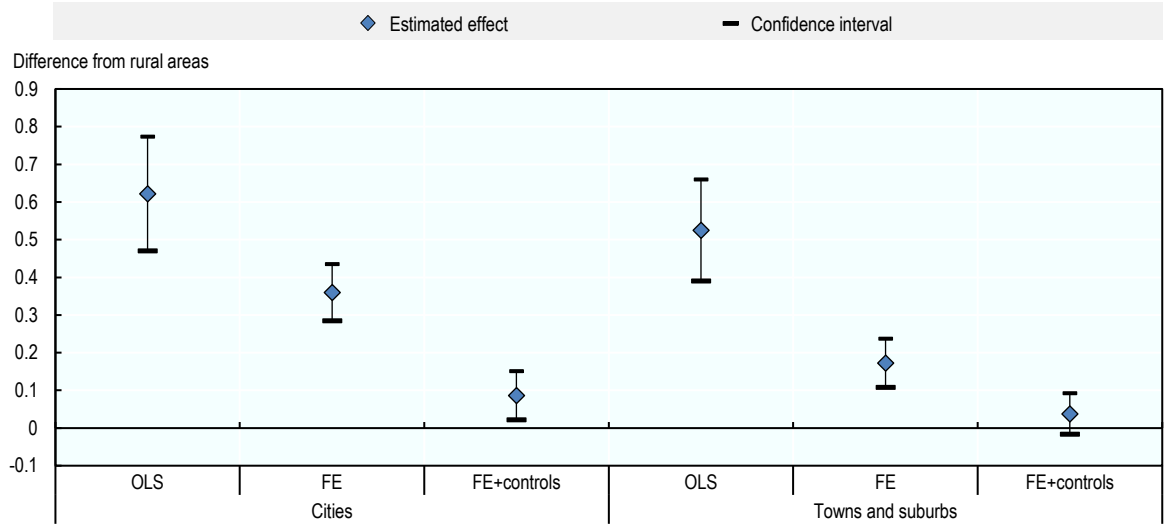
The evidence on those key well-being dimensions might offer an explanation of why quality of life differs across the degree of urbanisation and why cities offer the highest quality of life for their residents. While many of those factors such as access to public infrastructure, healthcare or employment opportunities are local determinants of quality of life, other factors can lead to directly observable systematic differences between residents of different areas. Systematic differences between residents of cities and other areas in aspects such as educational attainment, age or motivation, referred to as *sorting*, could also partly explain geographic differences in life satisfaction, and thus quality of life more generally. For example, previous studies have shown that age affects life satisfaction differently over the life cycle.[20] Similarly, previous work highlights the importance of educational attainment (Witter et al., 1984[29]; Chen, 2012[30]) and employment outcomes (Di Tella, MaCulloch and Oswald, 2001[31]) for life satisfaction and well-being.[21]

Residents across the degree of urbanisation differ substantially in key characteristics such as educational attainment, age and per capita income (Annex Table 2.B.1). Taking into account such differences is important for examining life satisfaction across the degree of urbanisation as the observed differences in life satisfaction might reflect differences in the composition of population across settlements.[22] Cities or towns and semi-dense areas often attract skilled individuals, with higher educational attainment, better health and greater economic opportunities, all of which can directly influence quality of life.

Across the world, individual and household characteristics, as well as country-specific factors, explain a considerable proportion of the *happiness gap* between cities and rural areas. City residents are more than 13% more likely to be satisfied with their lives than rural residents, a difference that falls 7.6% when country-specific characteristics (fixed effects) are included and further to 1.8% when the analysis controls for observable characteristics (Figure 2.20). After controlling for the level of education, age, household size, gender and per capita income, the effect of living in a city on life satisfaction remains statistically significant but is strongly reduced. However, the true effect of living in a city on life satisfaction might be larger than suggested by the estimates in Figure 2.20. Living in a city can directly affect income levels and educational attainment due to, on average, more and better schooling and job opportunities as well as the presence of different types of industries and service sectors (as documented in the sections above). Thus, controlling for observable characteristics such as age, education or income, some of which are influenced by living in a city, provides a lower-bound estimate for the actual effect of living in a city (or town or semi-dense area) on life satisfaction.

In summary, the analysis in this chapter provides novel and important insights into the subnational dimension of quality of life. First, it documents that quality of life differs substantially across the degree of urbanisation around the world. Second, it explains why quality of life is highest in cities and lowest in rural areas. Along many key well-being dimensions, residents in cities or towns & semi-dense areas benefit from better local conditions such as employment opportunities, healthcare, educational opportunities, access to services or modern infrastructure. Additionally, systematic differences in terms of age, educational attainment or income of residents help explain higher quality of life in cities and towns & semi-dense areas. Therefore, this chapter does not only shed light on the importance of place-based factors for quality of life but also offer evidence on the reasons why quality of life differs within countries. Hereby, the report contributes to a place-based understanding of SDGs related to quality of life.

Figure 2.20. Regression analysis: Life satisfaction by degree of urbanisation



Note: Annex 2.C explains the underlying regression in detail. Life satisfaction in rural areas is the baseline result. The figure presents the effects relative to the baseline and the confidence intervals. Observations are weighted with the individual weights provided by Gallup. Standard errors are robust and clustered at the country level.
OLS denotes ordinary least squares regressions.
FE demarks regressions that include country fixed effects. For results presented by the columns "FE+controls", household and respondents' characteristics are additionally controlled for.
Source: All data from Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

Finally, this chapter demonstrates that towns & semi-dense areas have idiosyncratic properties and offer an insightful view on the rural-urban continuum in policy areas. In many dimensions of quality of life, in particular, in economic opportunities and the provision of services such as healthcare and utilities, towns & semi-dense areas are halfway between cities and rural areas. This position, in between the traditional rural-urban dichotomy, also means that towns and semi-dense areas can play an important role of fostering urban linkages that can help enhance economic growth and quality of life in all areas (OECD, 2019[32]; forthcoming[33]). Towns & semi-dense areas can facilitate rural-urban linkages, in particular in developing countries, by providing a bridge between rural areas on the one hand and cities on the other (OECD/PSI, 2020[34]).

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Notes

[1] Data come from the Gallup World Poll and consist of countries from all world regions and all country income groups. In total, 13% are high-income countries, 65% middle-income countries (32% upper- and 33% lower-middle income) and 22% low-income countries.

[2] The question asks respondents to rate their current living conditions on a scale from 0, the worst possible life, to 10, the best possible life. Respondents are considered to be satisfied with their life if they give a score of 8 or higher.

[3] All reported averages for the Gallup data by income group or world region are unweighted country averages.

[4] The twelve countries, in order of largest relative difference, are the Gambia, Egypt, Azerbaijan, Senegal, Venezuela, Bulgaria, Mauritania, Central African Republic, Tunisia, South Sudan, Tajikistan and Afghanistan.

[5] In fact, these differences remain significant in a regression framework even after controlling for GDP (log GDP per capita) and income level group (high, upper-middle, lower-middle, low), and clustering standard errors by either region or income group.

[6] These findings are based on country cross-sectional linear regressions. City growth is defined as the annualised population growth rate between 2000 and 2015. The underlying regression controls for the log of countries' GDP per capita in purchasing power parity (PPP) and is robust to clustering standard errors at the regional as well as income group level.

[7] The regressions control for the log of countries' GDP per capita in PPP and the levels of life satisfaction in both cities and rural areas.

[8] The results are robust to controlling for sorting, i.e. controlling for individual and household characteristics.

[9] Geo-coding of Gallup differs by country, based on the availability of land phone lines. Gallup uses telephone surveys in countries where telephone coverage represents at least 80% of the population or is the customary survey methodology. In all other countries, Gallup uses face-to-face interviews, which yield the necessary information geo-code and classify responses into the degree of urbanisation.

[10] The sample covers countries from around the world. In total, it includes 35 countries from Sub-Saharan Africa, 30 from Central Asia and Europe, 21 from Latin America and the Caribbean, 10 from East Asia and the Pacific, 8 from the Middle East and North Africa, 6 from South Asia, and 1 from North America. Among the 111 countries referred to in this section, 14 are OECD members. The included OECD countries are Chile, Colombia, the Czech Republic, Estonia, Greece, Hungary, Israel, Latvia, Lithuania, Mexico, Poland, the Slovak Republic, Turkey and the United States.

[11] The analysis of DHS work builds on the work by Henderson et al. (2019[23]).

[12] The Demographic and Health Surveys (DHS) program collects and disseminates accurate, nationally representative data on health and population in developing countries: https://dhsprogram.com/.

[13] The country breakdown is as follows: 29 countries from Sub-Saharan Africa (Angola, Benin, Burkina Faso, Burundi, Cameroon, Chad, CDR, Comoros, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Guinea, Kenya, Liberia, Lesotho, Malawi, Mali, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Togo, Uganda, Zambia and Zimbabwe), three from South Asia (Bangladesh, India, Nepal), four from Southeast Asia (Cambodia, Myanmar, Philippines, Timor-Leste) and five from Latin America and the Caribbean (Colombia, Dominican Republic, Guatemala, Haiti, Honduras). For a subset of these countries, earlier geo-coded surveys are available so that changes over time can be observed.

[14] Due to limited data availability on the cost of living, this section only presents findings on nominal wages and income.

[15] Gallup data do not include information on the specific occupation of respondents.

[16] The findings are based on regression evidence that points out a significant correlation between improved sanitation and lower diarrhoea rates, accounting for household characteristics.

[17] Due to data limitations, other health outcomes are limited to India. Henderson et al. (2019[23]) report statistics on high blood pressure, asthma and diabetes among adults. In India, high blood pressure, asthma and diabetes are all higher in cities than in towns and semi-dense areas, which in turn have higher rates than rural areas.

[18] Improved sanitation is defined by the DHS-WHO Joint Monitory Program to include the following: all shared and non-shared facilities that flush/pour flush to piped sewer system, septic tank, pit latrine; ventilated improved pit latrine, pit latrine with slab, and composting toilet. Additionally, facilities that flush to unknown locations are considered improved, whereas facilities that flush to a known location but not to a sewer system, septic tank, or pit latrine are classified as unimproved.

[19] The analysis of changes over time is limited to Sub-Saharan Africa and South Asia because countries in Latin America and Southeast Asia generally do not have usable DHS surveys for the years around 2000.

Since Indian DHS data in 2000 were not georeferenced, the South Asia sample consists of Bangladesh and Nepal.

[20] Recent work has shown that age exhibits a U-shape relationship with happiness. Younger (below 20) and older (above 50) individuals have a higher life satisfaction than individuals in between (Blanchflower and Oswald, 2011[37]). Nikolaev and Rusakov (2016[40]) argue that pursuing education might result in short-term costs in terms of sacrificing satisfaction but results in higher levels of happiness for educated individuals from their mid-30s.

[21] In addition to age, empirical research has highlighted a number of objective socio-economic factors correlated to subjective well-being. Income boosts individual well-being (Easterlin, 1995[39]; Peiró, 2006[41]) and unemployment depresses it (Di Tella and MacCulloch, 2006[38]). Being married or in a relationship (Bjornskov, Dreher and Fisher, 2008[36]) is positively correlated with subjective measures of life satisfaction.

[22] Annex 2.B provides a thorough explanation of and motivation for why sorting matters and how using microdata can mitigate the sorting problem through econometric regressions.

Annex 2.A. Description of main variables

The table below summarises and describes the key outcome and control variables derived from the Gallup World Poll.

Annex Table 2.A.1. Main variables from Gallup World Poll

Variable	Survey question	Values
Life satisfaction	Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. Suppose we say that the top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?	0-worst; 10-best
Binary life satisfaction	Recoded variable: 0-6 dissatisfied; 7-10 satisfied.	0-dissatisfied; 1-satisfied
Future life satisfaction	Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. Suppose we say that the top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. Just your best guess, on which step do you think you will stand on in the future, say about five years from now?	0-worst; 10-best
Standard of living satisfaction	Are you satisfied or dissatisfied with your standard of living, all the things you can buy and do?	0-dissatisfied; 1-satisfied
Future standard of living satisfaction	Right now, do you feel your standard of living is getting better or getting worse?	1-worse; 3-better
Satisfaction for area of residence	Are you satisfied or dissatisfied with the city or area where you live?	0-dissatisfied; 1-satisfied
Recommendation area of residence	Would you recommend the city or area where you live to a friend or associate as a place to live, or not?	0-no; 1-yes
Economic conditions area of residence	How would you rate economic conditions in this city or area today – as excellent, good, only fair or poor?	1-poor; 4-excellent
Future economic conditions area	Right now, do you think that economic conditions in the city or area where you live, as a whole, are getting better or getting worse?	1-worse; 3-better
Work mobility in country	Can people in this country get ahead by working hard, or not?	0-no; 1-yes
Good area for new businesses	Is the city or area where you live a good place or not a good place to live for: People starting new businesses?	0-no; 1-yes
Educational opportunities in country	Do most children in this country have the opportunity to learn and grow every day?	0-no; 1-yes
Health	Do you have any health problems that prevent you from doing any of the things people your age normally can do?	0-no; 1-yes
Housing affordability	In the city or area where you live, are you satisfied or dissatisfied with the availability of good, affordable housing?	0-dissatisfied; 1-satisfied
Public transport system satisfaction	In the city or area where you live, are you satisfied or dissatisfied with the public transportation systems?	0-dissatisfied; 1-satisfied
Roads and highways satisfaction	In the city or area where you live, are you satisfied or dissatisfied with the roads and highways?	0-dissatisfied; 1-satisfied

Source: Based on Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx.

Annex 2.B. The advantage of microdata: Addressing the sorting problem

Using information on more than 163 000 geo-localised individuals living in 111 countries, an analysis of the Gallup World Poll microdata can mitigate the sorting problem by controlling for observable individual and households characteristics in a regression framework. The data are from the 2016 and 2017 waves of Gallup World Poll. The regressions presented in the section explaining the differences in life satisfaction additionally include country fixed effects to control for any country-specific characteristics that might affect the results. Controlling for these factors is necessary because city residents differ markedly in many characteristics from residents in TSAs or rural areas (Annex Table 2.B.1). City residents are, on average, significantly more educated. While more than 71% of city residents have completed more schooling than primary education, less than half of residents in rural areas have done so. Additionally, household size varies significantly across the degrees of urbanisation. Average household size in rural areas amounts to more than 4.5, compared to 3.8 in TSAs and 3.9 in cities. Financial means also differ strongly across the degree of urbanisation. Average per capita income is highest for residents in TSAs, followed by city residents, with 82% and 56% higher income levels than in rural areas respectively. Finally, employment patterns differ strongly, with higher employment rate in cities, TSAs and more self-employment in rural areas.

Annex Table 2.B.1. Differences in individual characteristics across the degree of urbanisation

Average education, household size and per capita income by degree of urbanisation

Variable		Rural areas	Towns and semi-dense areas	Cities	Total
Education level	N	69 041	35 264	58 486	162 791
Elementary education or less (up to 8 years of education)	Share (%)	51.9	33.6	28.4	39.5
At least secondary education (9-15 years of education)		41.3	53.3	54.7	48.7
4 year of post-secondary education and/or 4-year college degree		6.8	13.1	16.9	11.8
Household size	N	68 964	35 277	58 285	162 526
	Average	4.5	3.8	3.9	4.1
Per capita annual income in International Dollars	N	68 964	35 277	58 285	162 526
	Average	3 294	5 318	5 948	4 685

Note: The presented statistics are based on simple averages of all respondents across all 111 countries included in the Gallup World Poll.
Source: All data from Gallup (2017[14]), *Gallup World Poll, 2016-17*, https://www.gallup.com/analytics/232838/world-poll.aspx; elaborated by OECD, 2019.

Annex 2.C. Regression framework for micro data analysis

The regression analysis presented in this chapter is based on linear regressions as described by the following equation:

$$Y_i = \alpha + \beta_1 DEGURBA_i + \beta_2 X_i + \mu_c + \varepsilon_i$$

where: Y_i is the outcome of interest for individual i; $DEGURBA_i$ is a categorical variable indicating if the individual i is living in an urban area, town and semi-dense area or a rural one; X_i is the list of individual observable controls previously mentioned (6 dummies for employment status; 10 age brackets dummies; gender; 3 dummies for education; 6 dummies for marital status; household size; log of per capita annual income); μ_c is the country fixed effect which should capture the unobservable characteristics common to country c; and ε_i is the error term. β_1 is the coefficient of interest that captures eventual differences in life satisfaction or the other outcome variables between the different degrees of urbanisation. The observations are weighted with the weights provided by the designers of the survey and the standard errors are robust and clustered at the country level. In a second phase of the analysis, a dummy variable indicating whether an individual lives in an urban areas, cities or town and suburbs, or in a rural one replaces the degree of urbanisation indicator.

Annex Table 2.C.1. Regression analysis: Life satisfaction by degree of urbanisation

Life satisfaction (WP16)	DEGURBA			Urban areas vs. rural areas		
	OLS	FE	FE-Controls	OLS	FE	FE-Controls
Rural areas	0	0	0	0	0	0
Towns and semi-dense area	0.525***	0.172***	0.037			
	0.068	0.032	0.028			
Cities	0.0622***	0.359***	0.086***			
	0.077	0.038	0.033			
Urban areas				0.585***	0.285***	0.066***
				0.067	0.03	0.025
Constant	4.719***	6.739***	3.389***	4.719***	6.743***	3.375***
	0.102	0.023	0.233	0.102	0.022	0.232
N_tot	160 314	160 314	153 503	160 314	160 314	153 503
Cluster	111	111	110	111	111	110
R2	0.014	0.136	0.185	0.014	0.136	0.185
Country FE	No	Yes	Yes	No	Yes	Yes
Individual controls	No	No	Yes	No	No	Yes
Y_mean	5.048	5.048	5.075	5.048	5.048	5.075
Y_sd	2.448	2.448	2.433	2.448	2.448	2.433

Note: Confidence levels: * p<0.10, ** p<0.01. OLS refers to ordinary least squares regressions. FE refers to regressions that include country fixed effects. FE-Controls refers to regressions with fixed effects and additional controls. Clustered standard errors below the coefficients. Controls: 6 dummies for employment status; 10 age brackets dummies; Gender; 3 dummies for education; 6 dummies for marital status; household size; log of per capital annual income.

Observations are weighted with the individual weights provided by Gallup. Standard errors are robust and clustered at the country level.

Source: Based on Gallup (2018[35]), *Gallup World Poll 2018*, https://www.gallup.com/analytics/232838/world-poll.aspx; estimation by OECD, 2019.