Where Is Poverty Concentrated? New Evidence Based on Internationally Consistent Urban and Poverty Measurements

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Discussion Paper

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1 Introduction

The first Sustainable Development Goal (SDG) is to reduce global poverty.[1] As a custodian agency responsible for monitoring progress, the World Bank measures and monitors global poverty across countries based on income or consumption expenditures reported in household budget surveys and the international poverty lines (Ferreira et al., 2016; Ravallion et al., 1991; World Bank, 1990; World Bank, 2022). However, the current practice of measuring global poverty implicitly adopts official national definitions of urban areas, which have been shown to vary widely across countries (Dijkstra et al., 2021; Roberts et al., 2017; Satterthwaite, 2007; World Bank, 2009). This variation poses a challenge in disaggregating poverty by urban and rural areas in a globally comparable way. The lack of globally consistent information on urban poverty hinders efficient and effective resource allocation to achieve the SDGs. National governments may struggle to allocate resources optimally between urban and rural areas, as well as between different types of urban areas within their countries. Unfortunately, only a few attempts have been made to measure and analyze global poverty from an urban/rural perspective, with Ravallion et al. (2007) being an exceptional early example examining the urbanization of global poverty. At best, cross-country comparisons have been made based on poverty measures using national poverty lines (for example; Ferré et al., 2012).

Building on recent work by Combes et al. (2023), this paper aims to provide new evidence on poverty distributions within and between countries based on globally consistent urban and rural poverty measurements.[2] Combes et al. (2023) present a new effort to consistently delineate urban areas across countries using two different approaches: the Degree of Urbanization (DOU) and Dartboard (DB) approaches. The DOU approach classifies cells in a gridded population layer into different urban and rural categories by applying uniform population and population density thresholds to all countries (Dijkstra et al., 2021). Meanwhile, the DB approach also classifies gridded population cells but distinguishes different urban and rural categories based on each country's own population density distribution (de Bellefon et al., 2021). In other words, the DOU is an absolute measure of urbanization, while the DB is a relative measure. These new measures suggest that official urban definitions tend to underestimate urban population shares in Sub-Saharan Africa (Figure 1). Moreover, the DOU and DB approaches distinguish multiple types of urban areas, providing a more nuanced understanding of urbanization beyond a simple urban-rural dichotomy (Cattaneo et al., 2022). For this study, a novel dataset was created by integrating these new urban classifications into the existing household budget surveys (HBS), covering 221,000 households and approximately 1 million individuals from 20 low- and middle-income countries across the world.

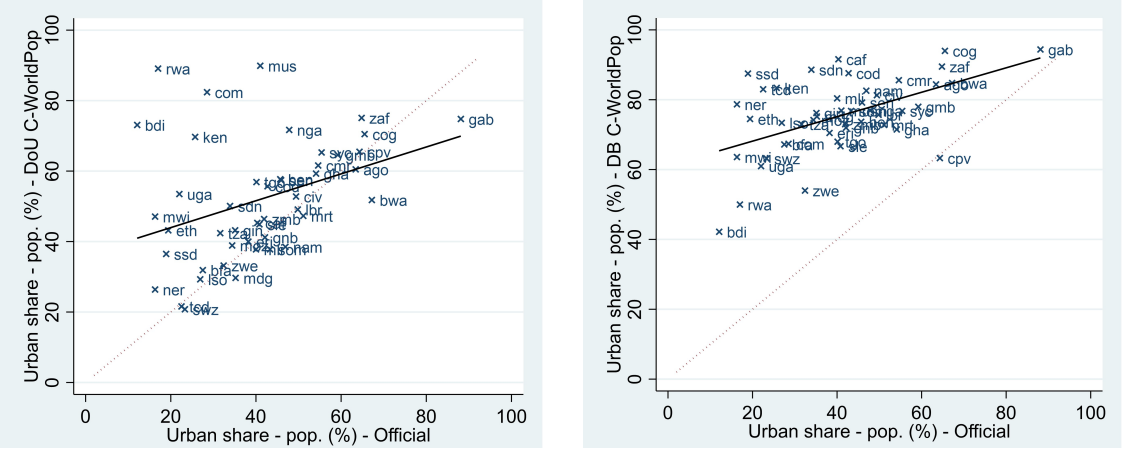
Based on this new international database of urban poverty, we primarily focus on 16 countries in Sub-Saharan Africa (SSA), where 60 percent of extreme poverty is concentrated (World Bank, 2022). We first examine a set of questions regarding poverty incidence across different geographic areas. One fundamental question is *whether and to what extent poverty incidence is lower in urban compared to rural areas*. While productivity tends to be higher in denser areas due to agglomeration effects (Duranton and Puga, 2004; Duranton, 2015; Glaeser and Gottlieb, 2009; Gollin et al., 2002; Grover et al., 2021; Michaels et al., 2012) and the sorting of higher-ability individuals into these areas (Combes et al., 2008), monetary poverty is not necessarily lower in urban areas once the higher cost of living is considered [3]. Our newly created dataset confirms that for the 16 Sub-Saharan African countries we consider, the cost of living is higher in urban areas, particularly in denser urban areas. Urban poverty can be as prevalent and severe as rural poverty when the negative effects of density, such as crowding and congestion externalities, outweigh its benefits (Lucci et al., 2018; Marx et al., 2013). Additionally, it is an empirical

[1] Target 1.1 aims to 'eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day'. The latest extreme poverty line is $2.15 per day in 2017 Purchasing Power Parity (PPP) terms (World Bank, 2022).

[2] The preliminary findings from 7 countries are reported in Combes et al. (2022).

[3] For example, African cities have a high cost of living relative to their country's GDP level (Nakamura et al., 2019).

Figure 1: Urban population shares in Sub-Saharan Africa by different definitions



(a) DOU vs. official urban definitions

(b) DB vs. official urban definitions

Source: Combes et al. (2023)
Note: Dotted lines are 45-degree lines. DOU: Degree of urbanization. DB: Dartboard.

question whether poverty and density are negatively correlated not only between urban and rural areas but also within urban areas, as income and cost of living can vary significantly at lower geographic scales, especially between the centers of large cities and their suburbs.[4]

The second set of questions we address pertains to the spatial distributions of poverty. *Where is the mass of poverty, defined by the total number of poor people, concentrated? Is the mass of poverty still predominantly concentrated in rural areas?* It is widely known that global extreme poverty is concentrated in Sub-Saharan Africa (World Bank, 2022). Despite the substantial increase in urban population, it is still assumed that extreme poverty remains concentrated in *rural* areas. For example, Castañeda et al. (2018) analyzed 89 developing countries and estimated that around 80 percent of extremely poor populations live in rural areas. Beegle and Christiaensen (2019) reported that around 82 percent of extremely poor populations in Sub-Saharan Africa live in rural areas. However, due to the lack of geographic disaggregation in global poverty data based on a consistent classification of urban and rural areas, hard evidence is lacking. It is also crucial to understand in which types of urban areas poverty is concentrated, such as major cities or secondary towns.[5] A proper understanding of the distribution of urban and rural poverty is essential, given the ongoing debates about the unique nature of Africa's urbanization and its implications for economic growth and poverty reduction.[6] Such information is also necessary to design policies that effectively facilitate structural transformation and boost productivity, improve living standards, and ultimately reduce poverty.

Our analysis underscores the need to address urban poverty to accelerate global poverty reduction. The results confirm that urban poverty rates are lower than rural poverty in all 16 SSA countries studied based on internationally consistent urban definitions and poverty measures. Poverty incidence in dense urban areas is particularly low, whereas poverty rates in low-density urban areas are closer to those in rural areas. The patterns hold even after controlling for observed individual household characteristics. The use of DOU/DB approaches, instead of relying on each country's official urban definition, increases urban poverty rates in most countries. However, the

[4]As for non-monetary measures, Gollin et al. (2021) find that various living condition indicators positively correlate with population density in Africa. Ameye and De Weerdt (2020) analyze 10 East African countries and find that the prevalence of child stunting first improves with increasing city size but worsens for cities with a population of over 1 million.

[5]Recent studies highlight the critical role of secondary towns in poverty reduction (Christiaensen and Todo, 2014; Gibson et al., 2023; Gibson et al., 2017).

[6]Such studies include, but are not limited to, Bryan et al. (2020), Castells-Quintana and Wenban-Smith (2020), Fay and Opal (2000), Gollin et al. (2016), Henderson et al. (2013), Henderson et al. (2017), Jedwab et al. (2017).

choice of DOU (absolute) or DB (relative) approach does not matter much. The most striking result is that while rural areas accommodate more than half of the poor populations in many countries, the mass of poverty is more concentrated in urban areas than previously thought. By switching from the official urban definitions to the DOU and DB approaches, the number of SSA countries with more than 80 percent of poor populations living in rural areas decreases from 13 to 8 and 2 countries, respectively. Furthermore, in 4 of 16 SSA countries more than half of the poor populations reside in urban areas. We also find that, unlike poverty rates, the choice of DOU or DB approach to delineating urban areas makes a critical difference to the spatial distribution of poor populations.

The remainder of the paper is structured as follows. Section 2 provides a brief background on the framework of global poverty measurement and urban delineation—the variation in urban definitions across countries and pros and cons of different urban delineation methodologies. Section 3 describes the data used in this paper. Section 4 presents the empirical approach to integrating the new globally consistent urban classifications into the global poverty framework. Section 5 reports the results, followed by a discussion and conclusions in Section 6.

2 Global poverty measurement and urban delineation

2.1 Global poverty measurement

Global poverty is measured using individual or household welfare proxies, such as consumption expenditures or income, along with international poverty lines and price indexes to account for price differences.[7] To measure poverty, household budget surveys are used to aggregate consumption expenditures for each household (Deaton and Zaidi, 2002; Mancini and Vecchi, 2022). These expenditures are then converted to per capita consumption expenditures by dividing them by the number of household members. The World Bank defines different thresholds for international poverty lines, including the extreme poverty line ($2.15 per capita per day in 2017 PPP terms), the lower-middle-income poverty line ($3.65), and the upper-middle-income poverty line ($6.85) (World Bank, 2022).[8] To make household consumption expenditures comparable to poverty lines, they need to be adjusted using price indexes. The purchasing power parity (PPP) index is used to account for currency exchange ratios and price level differences across countries. Additionally, the consumer price index (CPI) is used to adjust for price differences over time, while a spatial deflator is employed to account for subnational price differentials (Amendola et al., 2023; Nakamura and Yoshida, 2021).

The poverty status of an individual is measured as follows. Real consumption expenditures of individual i in region r in country C in year t, which we denote as $REXP^C_{it}$, is calculated as:

$$REXP^C_{it} = NEXP^C_{it} \times \left(\pi_i^{CN_r(i)t}\right)^{-1} \tag{1}$$

where $NEXP^C_{it}$ is the nominal consumption expenditure of the individual and $\pi_i^{CN_r(i)t}$ is a spatial price deflator that adjusts for cost-of-living differences between region r and the national level (N). To determine an individual's poverty status in relation to the global poverty line expressed in US$ in 2017 PPP terms, the level of consumption expenditure is converted using the following equation:

$$REXP^C_{it,\ 2017PPP} = REXP^C_{it} \times \left(CPI^C_{2017,\ t}\right)^{-1} \times \left(PPP_{C,\ 2017}\right)^{-1} \tag{2}$$

where $CPI^C_{2017,\ t}$ adjusts for the price differences between the survey year t and 2017 in country and $PPP_{C,\ 2017}$ adjusts for the differences in the currency exchange ratios and price levels

[7] For the sake of simplicity, we refer to consumption, instead of income, as a welfare measure in the remainder of this paper.

[8] The international poverty line is derived as the median of the national poverty lines of low-income countries, while the lower-middle-income and higher-middle-income poverty lines, respectively, are the median national poverty lines of lower-middle-income and upper-middle-income countries.

between country C and the United States in 2017. The poverty rate at the national level, P_0^C, is then measured as the percentage of the population living in poverty:

$$P_0^C = \frac{1}{N_C} \sum_{i=1}^{N_C} I(REXP_{it,2017PPP}^C < IPL_{2017}) \tag{3}$$

where $I(.)$ is an indicator function that takes on the value 1 if the bracketed expression is true or 0 otherwise, N_C is the total population in country C, and IPL_{2017} represents one of the international poverty lines expressed in US$ in 2017 PPP terms. The subnational poverty rate for region r,P_0^r, is expressed in the following way:

$$P_0^r = \frac{1}{N_r} \sum_{i=1}^{N_r} I(REXP_{it,2017PPP}^C < IPL_{2017}) \tag{4}$$

The global poverty measurement methodology described above faces several methodological challenges. One of the main challenges is the variation in the definition of urban areas across countries. Each country has its own definition of urban areas, and these definitions can differ significantly (Dijkstra et al., 2021;Roberts et al., 2017; Satterthwaite, 2007; World Bank, 2009). As a result, comparing urban and rural poverty across countries becomes inconsistent and unreliable. Another challenge is the limited focus on adjusting the cost of living across subnational areas *within* countries in the context of global poverty measurement. While there has been considerable attention given to accounting for differences in prices *between* countries (for example; Deaton, 2010; Ravallion, 2018), less emphasis has been placed on adjusting for cost-of-living variations within countries. This is particularly important when estimating urban and rural poverty, as living expenses can vary significantly between urban and rural areas (Bidani and Ravallion, 1993; Jolliffe et al., 2004; Jolliffe, 2006; Nakamura and Yoshida, 2021). Failing to account for these subnational differences in the cost of living tends to result in an underestimation (overestimation) of urban (rural) poverty. Furthermore, housing costs are often excluded from spatial price deflators in global poverty measurement. However, housing costs tend to vary the most across different locations, particularly in urban areas. By excluding housing costs from the price deflators, the cost of living in urban areas is underestimated.[9] This can lead to an overestimation of the living standards of urban households and an underestimation of urban poverty, as well as an underestimation of rural living standards and an overestimation of rural poverty.

Ravallion et al. (2007) and Ferré et al. (2012) are important studies that have contributed to our understanding of the spatial dimension of poverty from a global perspective. Ravallion et al. (2007) conducted a groundbreaking study that examined the urbanization of global poverty using data from over 200 household surveys in approximately 90 countries between 1993 and 2002. The study introduced several innovative approaches. Firstly, it utilized global poverty lines to measure poverty, providing a standardized measure across countries. Secondly, it addressed the differences in the cost of living between urban and rural areas by calculating the ratio of urban and rural poverty lines for each country.[10] Thirdly, the authors analyzed the dynamic aspects of urbanization and poverty reduction, as well as the and heterogeneity across different world regions, using multiple data points over time. However, one limitation of Ravallion et al. (2007) is the possible bias from the inconsistent urban definitions across countries.

[9] A counterargument here is that higher housing costs in urban than in rural areas for properties that share the same structural characteristics (i.e., size, number of rooms, etc.) reflect, at least in part, the existence of superior urban amenities, including access to basic services, which are welfare-enhancing. To the extent that this is the case, it is unclear how to incorporate the value of these amenities into the welfare measure.

[10] More precisely, Ravallion et al. (2007) create another global poverty line for each country based on the ratio of the country's urban and rural poverty lines. Essentially, this is equivalent to deflating household consumption expenditures by a spatial deflator derived as the ratio. The poverty lines used for the analysis are constructed following the cost-of-basic-needs approach (Ravallion and Bidani, 1994) in most countries.

Meanwhile, Ferré et al. (2012) conducted a study that focuses on the relationship between poverty and city size in eight low- and middle-income countries.[11] They employed a small area estimation method to estimate poverty for specific geographic units. The study revealed that poverty incidence tends to be higher in smaller towns, and a significant concentration of poverty is observed in these areas. While the study provides valuable insights, it also has some limitations. For instance, it used each country's national poverty line instead of global poverty lines, which may limit the comparability of the results across countries. Additionally, the study did not consider the distinction in the cost of living based on city size, and similar to Ravallion et al. (2007), it did not apply a consistent urban definition across countries.

These studies contribute to our understanding of the spatial dynamics of poverty, but they also highlight the need for further research improvements in methodology to address the challenges associated with defining urban areas, measuring poverty consistently across countries, and accounting for variations in the cost of living.

2.2 Urban delineation

Accurately and consistently defining urban areas is a crucial step in obtaining accurate and consistent estimates of urban (and rural) poverty across countries. Historically, there has been little attention in urban economics towards establishing consistent definitions for urban areas across different countries (Combes et al., 2023; Duranton, 2021; Roberts et al., 2017). These definitions vary significantly across countries, but most of them incorporate at least one of four essential criteria for defining urban areas. The most commonly used criterion is population size, with the majority of countries employing a minimum population threshold as part of their urban area definition. Additionally, some countries take into account factors such as the availability of urban infrastructure and services, the structure of the local economy, and/or population density (Roberts et al., 2017). However, it is worth noting that many countries do not utilize explicit criteria for delineating cities (Dijkstra et al., 2021; Roberts et al., 2017). This lack of a consistent definition of urban areas can lead to statistical artifacts, ultimately impeding policy recommendations and potentially reducing their effectiveness.[12]

In response to the challenges posed by inaccurate and inconsistent urban delineation, recent research has highlighted the significance of developing new methodologies to accurately and consistently define urban areas across countries.[13] This is made possible by the increasing availability of high-resolution global gridded population datasets and satellite imagery. According to Combes et al. (2023), two leading methodologies have emerged for achieving consistent urban delineation. The first is the Degree of Urbanization (DOU) method, initially introduced by Dijkstra and Poelman (2014) and later extended globally by Dijkstra et al. (2021). The DOU method defines cities based on two primary absolute thresholds: population size and population density. This method is straightforward to implement and has been widely applied by a coalition of international organizations led by the European Commission. In fact, it was endorsed by the United Nations Statistical Commission in March 2020 as a recommended method for international comparisons of urban areas (Dijkstra et al., 2021). In contrast, the second approach, known as

[11] Albania, Brazil, Kazakhstan, Kenya, Mexico, Morocco, Thailand, and Sri Lanka.

[12] As an example, Latin American countries have significantly lower GDP per capita than expected based on their urbanization levels and are also "over-urbanized" relative to the size of their agriculture sectors. Roberts et al. (2017) demonstrate that these patterns are an illusion resulting from systematic biases in the measurement of urbanization levels, and disappear when adopting a consistent definition of urban areas across countries.

[13] These new methods tend to adopt either a functional or, more commonly, a morphological approach to delineating urban areas (Duranton, 2021). Functional approaches identify a city's geographical extent based on the strength of spatial economic interactions with the typical focus being on delineating cities based on the strength of commuting flows. By contrast, morphological approaches identify a city's geographical extent based on its physical extent. Examples of more functional based approaches to the globally consistent definition of urban areas include Uchida and Nelson (2009; see also World Bank, 2009) and Moreno-Monroy et al. (2021). Meanwhile, examples of morphological approaches include those that identify a city's physical extent using built-up area data (Heinrigs, 2020; OECD/SWAC, 2020; OECD/UN ECA/AfDB, 2022), gridded population data (Dijkstra and Poelman, 2014; Dijkstra et al., 2021), and nighttime lights data (Balk et al., 2006; Brecht et al., 2013; Ch et al., 2021; Dingel et al., 2021; Ellis and Roberts, 2016; Zhang and Seto, 2011; Zhou et al., 2015).

the dartboard approach, was introduced by de Bellefon et al. (2021). This method defines cities in relative terms (i.e., by endogenously deriving population density thresholds that are specific to each country), utilizing local density thresholds that are endogenously determined based on a country's spatial population distribution.

Under the DOU approach, the classification of each cell in a gridded population dataset, such as WorldPop and GHSPOP, is based on its belonging to an urban center (city), urban cluster (towns and suburbs), or rural area (Table 1; also see Panel A of Figure A1 in Appendix A for an example of Greater Accra, Ghana).[14] A cell is considered part of an urban center if it is part of a spatially contiguous set of grid cells, where each cell has a population density of at least 1,500 people per km^2 and the aggregate population of the set is at least 50,000. Urban clusters, meanwhile, are defined as sets of grid cells in which each cell has a population density of at least 300 people per km^2, and the set has an aggregate population of at least 5,000. Rural areas are defined as areas that are not classified as either urban centers or clusters.

The DB approach categorizes areas into three types: cities, which are composed of cores and suburbs; rural towns; and other rural areas (Table 1; also see Panel B of Figure A1 in Appendix A for an example of Greater Accra, Ghana; for a more in-depth description, see Combes et al., 2023). In the DB approach, the classification process begins by screening an area to determine its category. This screening involves identifying a contiguous set of cells for which the population density of each cell exceeds the 95^{th} percentile of a counterfactual distribution of grid cells. The counterfactual distribution is generated based on the assumption of a random spatial distribution of population. Among the areas that pass the screening, called the urban areas, cities are those that possess at least one *core*. Cores are identified as contiguous second-order urban pixels, determined by comparing them with a counterfactual population random distribution within urban areas. Suburbs, on the other hand, refer to the non-core parts of cities. Towns are areas that undergo the screening process but do not have any cores. These areas are ambiguous regions of urbanization that can be classified as either urban or rural, but towns are classified as part of rural areas in this paper. Areas that do not fall into any of the above categories are considered rural.

Table 1: Urban-rural classifications in DOU and DB approaches

Classification	Definition
Degree of urbanization approach (Dijkstra et al., 2021)	
Urban areas	Urban centers and urban clusters.
Urban centers	Spatially contiguous sets of $1km^2$ grid cells for which the population density of each cell $\geq$ 1,500 people per km^2 and aggregate settlement population $\geq$ 50,000.
Urban clusters	Spatially contiguous sets of $1km^2$ grid cells for which the population density of each cell $\geq$ 300 people per km^2 and aggregate settlement population $\geq$ 5,000.
Rural areas	Areas not classified as either urban centers or urban clusters.
Dartboard approach (de Bellefon et al., 2021)	
Urban areas (Cities)	Sets of contiguous grid cells with population density $> 95^{th}$ percentile of the counterfactual with a core.
Cores	Urban cores are identified as contiguous second-order urban grid cells with population density $> 95^{th}$ percentile of counterfactuals within urban areas.
Suburbs	Non-core parts of cities.
Rural areas	

[14] These three types of area correspond to "Level 1" of the DOU. "Level 2" of the DOU further disaggregates the number of types of urban area using different population density and overall population thresholds (see Dijkstra et al., 2021).

Classification	Definition
Towns	Sets of contiguous grid cells with population density $> 95^{\text{th}}$ percentile of the counterfactual with no core.
Other rural areas	Areas not classified as cities or towns.

Note: See Combes et al. (2023) for details. Towns are classified as urban in the stricter version of definition and as rural in the looser version of definition in Combes et al. (2023)

3 Data

For this study, we have prepared a new dataset called the International Urban Poverty Database by integrating two types of data: high-resolution gridded population data for constructing urban classifications, and detailed household-level data for constructing poverty measures.

3.1 Gridded population layers

We have utilized two gridded population datasets for the year 2015: GHSPOP and WorldPop, with a resolution of 1km and 250m, respectively. Both GHSPOP, created by the European Commission, and WorldPop, produced by the University of Southampton, are open-source datasets that cover most countries globally for multiple years.[15] The preparation of both datasets involves allocating each country's census-based population across gridded cells within a given administrative area. For GHSPOP, the population is evenly distributed across grid cells that contain built-up areas (Florczyk et al., 2019). In contrast, WorldPop utilizes a machine learning approach, specifically the random forest method, to calculate weights for each grid cell. These weights are based on various spatial input layers, including land cover, nighttime lights, and (social) infrastructure data. The population is then distributed across grid cells using these weights. Constrained WorldPop further constrains the distribution of the population to grid cells that contain built-up areas (Stevens et al., 2015).

In this study, our primary choice of input population layer is WorldPop, while GHSPOP serves as an alternative data source. Although GHSPOP was used by the European Commission to develop the DOU method, WorldPop, particularly constrained WorldPop, appears to better reflect the true spatial distributions of populations. This is because a detailed map of all building footprints was used for the development of constrained WorldPop layers for Sub-Saharan Africa.[16] When selecting the resolution for the datasets, we need to consider two opposing factors: computational speed and precision of the constructed urban classifications. We have chosen a 1km resolution for GHSPOP, as it is associated with the development of the DOU method. For WorldPop, we have opted for a resolution of 250 meters, which is four times more precise while still being computationally feasible.[17] The results of our analyses based on GHSPOP are reported in Appendix B.

3.2 Household budget surveys

In this study, we utilized the HBS data collected around 2015, which aligns with the years of WorldPop and GHSPOP. A key data requirement for this study is the information about the location identifiers of individual households, enumeration areas (EAs), or other geographic units within the HBS. Our analysis primarily focuses on HBS data with the required information from 16 SSA countries, including Angola, Burkina Faso, Chad, Côte d'Ivoire, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, Lesotho, Mauritania, Malawi, Niger, Senegal, Tanzania, and Uganda (Table 2). Additionally, we report results based on a few extra countries outside Sub-Saharan

[15] GHSPOP data is available on the following European Commission website: https://ghsl.jrc.ec.europa.eu/ghs_pop2019.php. WorldPop data is available here: https://www.worldpop.org/project/categories?id=3.

[16] See Combes et al. (2023) for details.

[17] The results based on 1km data are available upon request.

Table 2: List of Analyzed Countries

Region	Country
Sub-Saharan Africa (16)	Angola, Burkina Faso, Chad, Côte d'Ivoire, Ethiopia Gabon, Ghana, Guinea, Guinea-Bissau, Lesotho, Mauritania, Malawi, Niger, Senegal, Tanzania, Uganda
Additional countries	
North Africa and the Middle East (1)	Egypt, Arab Rep.*
South Asia (1)	Bangladesh
East Asia and Pacific (1)	Vietnam
Latin America and the Caribbean (1)	Colombia

Note: *The Arab Republic of Egypt only has information about poverty status and urban classifications at the individual level, other information such as consumption expenditures, age, sex, and education is not currently available.

Africa (Arab Republic of Egypt, Bangladesh, Vietnam, and Colombia) in Appendix C. For six of the 16 SSA countries in our study, we were able to access household-level GPS coordinates, specifically for Ethiopia, Gabon, Lesotho, Mauritania, Malawi, and Tanzania. In the remaining countries, GPS coordinates are available for enumeration areas (EA) or administrative units.

Table 3 summarizes the household-level data pooled across 16 Sub-Saharan African countries.[18] Each HBS dataset contains valuable information on household per capita consumption expenditures, which serves as a crucial factor in estimating poverty rates.[19] The spatially deflated per capita consumption expenditures exhibited a right-skewed distribution, with a mean of $3.99 (in 2017 PPP terms) and a standard deviation of 8.13. To ensure consistency and comparability, we utilized the consumption expenditure measures prepared by the World Bank for global poverty monitoring. However, we made certain adjustments through the reclassification of urban areas and the update of spatial deflators, as explained in Section 4. In specific cases, such as Ghana, Tanzania, and Egypt, we further modified the consumption expenditures by incorporating housing rents. This modification was made due to the concern of missing housing rents in consumption aggregates, particularly given our study's focus on urban versus rural areas. It is important to note that these adjustments resulted in lower global poverty rates for these countries compared to World Bank reports.[20] In addition to consumption expenditures, our dataset includes various variables related to demographics, such as household size, household head's age, sex, and marital status. Furthermore, we have information on education, including literacy rates and the highest education level achieved by the household head. Additionally, employment-related variables, such as employment status and economic sector of the household heads, have been included. Lastly, our dataset encompasses access to basic services, such as improved water, improved sanitation, and electricity.

[18]The Arab Republic of Egypt has only information about poverty status and urban classifications at the individual level, lacking other information such as real consumption expenditures, age, sex, and education. Country-level summary information is presented in Table A1 in Appendix A.

[19]As explained in Section 2.1, consumption expenditures are first aggregated for each household and then divided by the number of members to obtain per capita expenditures. It is assumed that individuals in the same household have the same welfare level and poverty status.

[20]It is case-by-case whether the modification results in an increase in poverty or a decrease in poverty, as the addition of housing rents to consumption aggregates can be offset by updated spatial deflators that adjust for housing price variations across sub-national areas.

Table 3: Summary Statistics of pooled household-level data

	N	Mean	Median	SD	Min	Max
Consumption (per day USD in 2017 PPP terms):						
Real per capita consumption expenditures	166,957	3.99	2.91	8.13	0.06	2289.78
Nominal per capita consumption expenditures	167,260	3.42	2.15	8.90	0.04	2521.83
Spatial deflator						
Spatial deflator	166,984	1.00	0.99	0.14	0.76	1.93
Demographic:						
Household size	167,357	6.55	6.00	3.80	1.00	62.00
Age of household head	167,253	40.31	40.00	18.46	0.00	119.00
Household head is male	167,303	0.78	1.00	0.41	0.00	1.00
Marital status (of household head):						
Married	167,293	0.75	1.00	0.43	0.00	1.00
Never married	167,293	0.04	0.00	0.18	0.00	1.00
Living together	167,293	0.07	0.00	0.25	0.00	1.00
Divorced/Separated	167,293	0.06	0.00	0.23	0.00	1.00
Widowed	167,293	0.09	0.00	0.29	0.00	1.00
Education (of household head):						
No education	151,321	0.37	0.00	0.48	0.00	1.00
Primary incomplete	151,321	0.25	0.00	0.44	0.00	1.00
Primary complete	151,321	0.13	0.00	0.34	0.00	1.00
Secondary incomplete	151,321	0.16	0.00	0.37	0.00	1.00
Secondary complete	151,321	0.02	0.00	0.15	0.00	1.00
Post secondary but not university	151,321	0.03	0.00	0.16	0.00	1.00
University incomplete and complete	151,321	0.04	0.00	0.19	0.00	1.00
Can read and write	164,312	0.56	1.00	0.50	0.00	1.00
Employment (of household head):						
Not in labor force	147,133	0.12	0.00	0.32	0.00	1.00
Unemployed	147,133	0.03	0.00	0.16	0.00	1.00
Employed in Agriculture	147,133	0.52	1.00	0.50	0.00	1.00
Employed in Industry	147,133	0.08	0.00	0.27	0.00	1.00
Employed in Services	147,133	0.26	0.00	0.44	0.00	1.00
Access to basic services						
Improved water	167,286	0.69	1.00	0.46	0.00	1.00
Improved sanitation facility	167,286	0.24	0.00	0.43	0.00	1.00
Access to electricity	156,228	0.48	0.00	0.50	0.00	1.00
DOU urban classification:						
Urban center	167,357	0.21	0.00	0.41	0.00	1.00
Urban cluster	167,357	0.20	0.00	0.40	0.00	1.00
Rural	167,357	0.60	1.00	0.49	0.00	1.00
DB urban classification:						
Core	167,357	0.35	0.00	0.48	0.00	1.00
Suburb	167,357	0.23	0.00	0.42	0.00	1.00
Town	167,357	0.19	0.00	0.39	0.00	1.00
Other rural	167,357	0.41	0.00	0.49	0.00	1.00

Source: International Urban Poverty Database.
Note: The statistics above are based on the household-level data pooled for 16 SSA countries. Real per capita consumption expenditures are deflated using a spatial deflator calculated using the WorldPop 250m dataset and the DOU method.

4 Empirical approach

4.1 Updating urban classification in HBS

In order to ensure consistent comparisons across countries, it is necessary to establish a standardized approach for defining urban areas, considering the wide variation in official national definitions. Building upon Combes et al. (2023), we employ both the DOU and DB approaches. While the DOU approach applies uniform population and population density thresholds to all countries, the DB approach provides more nuanced insights by identifying urban areas based on the relative density distribution within each country. Given the complementary nature of these

approaches, we utilize both the DOU and DB classifications.

To begin, we apply the DOU and DB classifications to the WorldPop and GHSPOP gridded population layers, which are then overlaid with geo-located HBS data. When GPS information is available in a country's HBS, the overlay process is straightforward. However, for countries lacking GPS information, we overlay the data at the lowest possible geographic unit level. The population shares of each DOU/DB category are calculated for each geographic unit, by generating aggregated statistics, such as poverty rates at the national and sub-national levels with an application of sampling weights. To obtain a binary indicator for households in each type of DOU and DB area in a country's HBS, we employ a "threshold" approach. This involves determining the number of people residing in grid cells of a particular type for each geographic area. If the majority of the population in an area lives in rural locations, the area is classified as rural. Conversely, areas are classified as urban under the DOU approach if the majority of the population resides in urban centers or clusters. Similarly, for DB indicators, areas are classified as core areas, suburbs, or towns based on the share of the population in each respective category.

It is worth noting that Henderson et al. (2019) also utilize one of the urban definitions employed in our study (the DOU approach) and gridded population data (GHSPOP). While both studies adopt a microdata approach, Henderson et al. (2019) primarily rely on the Demographic and Health Survey (DHS), whereas our study utilizes official household budget surveys. While the DHS provides valuable insights into a range of demographic and health outcomes, often more detailed than what is included in HBS data, the HBS data also encompasses a consumption (or income) variable to measure poverty, which is absent in the DHS data.

4.2 Integrating new urban classifications into global poverty measurement

To improve the accuracy and consistency of poverty analysis, we apply the DOU and DB classifications instead of the previously used, but inconsistently defined, urban/rural classifications found in HBS data. This integration involves several steps.

First, we update the spatial deflators in HBS data using the DOU and DB classifications to convert nominal consumption expenditures to real ones (equation [1] and equation [2]). By incorporating spatial deflators, we are able to account for price variations across subnational areas. While constructing new spatial deflators for all countries based on the same methodology and price data would be ideal, it is not feasible due to variations in price data availability. Instead, we update the spatial deflators used for the official global poverty estimation.[21] The resulting changes in poverty rates are solely attributed to the reallocation of households between urban and rural areas based on the transition from official to consistent urban definitions.

Second, we modify the existing spatial deflators by recalculating them based on the new DOU/DB classification. For example, in the case of Tanzania, the official spatial deflator is a Paasche price index constructed using food unit values for 26 provinces without any urban and rural distinction. However, we utilize alternative geographic divisions, such as urban centers, urban clusters, and rural areas for six regions based on the DOU classification, and cores, suburbs, towns, and other rural areas for six regions based on the DB classification.[22] In most countries, we replicate the steps involved in calculating spatial deflators by adjusting their geographic divisions.[23]

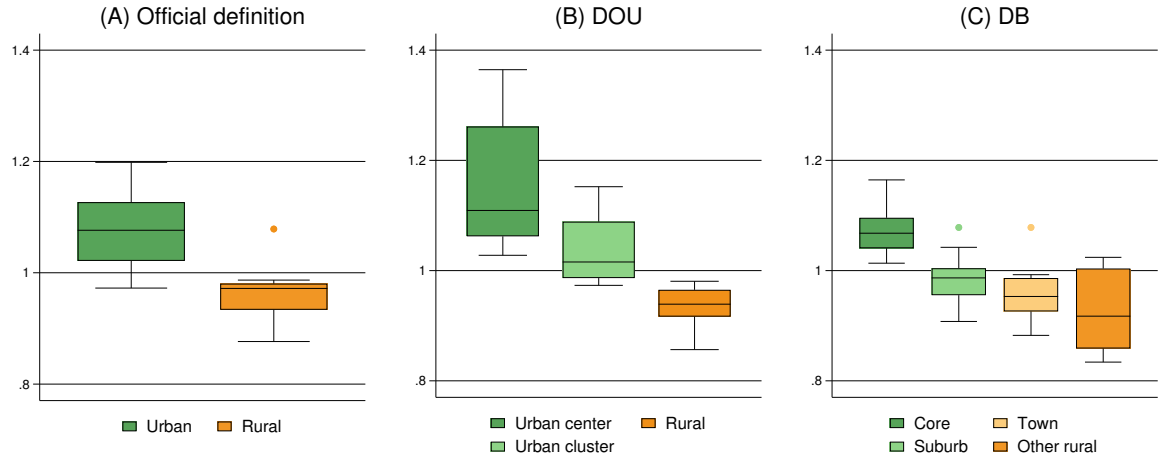
[21]However, for countries where global poverty is estimated using nominal consumption—Bangladesh, Egypt, Ethiopia, Ghana, and Tanzania—we use the spatial deflator used for poverty estimation with the national poverty lines.

[22]For Tanzania, we group 26 provinces into six regions because it is impossible to distinguish DOU/DB categories within each province due to the limited HBS sample size. Also, we classify all households in Dar es Salaam as urban centers (DOU) or cores (DB) when constructing spatial deflators due to only a limited number of households living in other DOU/DB categories in Dar es Salaam.

[23]Constructing a poverty line for each subnational region is a common practice. Poverty is measured based on nominal consumption aggregate—instead of real consumption aggregate—with regional poverty lines that take account of the cost-of-living differences across regions. Bangladesh and Egypt employ such a regional poverty line approach. We reconstruct regional poverty lines for those countries by changing the geographic divisions. For example, Bangladesh's official poverty lines are constructed for 16 geographic domains (City Corporation, urban,

It is worth noting that many countries only adjust for food prices with spatial deflators, neglecting housing costs. However, this approach can lead to a significant underestimation (overestimation) of poverty in urban (rural) areas, as housing costs tend to be higher in urban areas compared to rural areas.[24] To address this, we incorporate housing prices into the spatial deflators. While capturing accurate spatial variations in non-housing non-food prices can be challenging due to limited information on product specifications and unit values in market price surveys, housing characteristics and price information are typically available in the HBS data. Therefore, we estimate a housing price index using the HBS data and incorporate it into the spatial deflators.[25] The updated spatial deflators for 16 SSA countries clearly demonstrate that the cost of living is higher in urban areas, particularly in dense urban areas, compared to rural areas (Figure 2).

Figure 2: Cost of living index across urban versus rural areas in 16 SSA countries



Source: International Urban Poverty Database.
Note: DOU: Degree of urbanization. DB: Dartboard. The cost-of-living index is prepared as a spatial deflator for each country. It is normalized to 1 for each country overall. WorldPop 250m is used for both the DOU and DB methods.

4.3 Analysis with the new global dataset

To examine the relationship between household welfare and population density, we conduct regression analysis using household consumption expenditures as a proxy measure of household welfare. It is important to consider that the association between welfare and location may be influenced by household characteristics. For example, if more educated households tend to reside in urban rather than in rural areas, urban areas may have lower poverty rates simply due to the composition of more educated households (that is, "sorting"). Therefore, we investigate the extent to which household welfare is determined by location characteristics after controlling for household characteristics. Our main specifications are as follows:

and rural areas for six regions). In the case of the DOU classification, we reclassify them into urban centers, urban clusters, and rural areas for six regions. Then, the ratio of the regional poverty lines is calculated as a new spatial price deflator that is applied to the consumption aggregate when measuring poverty with international poverty lines.

[24]However, compared to richer countries, households in poor countries tend to allocate less budget to housing (see Figure A3 in Appendix A).

[25]The housing price index is calculated by estimating the following hedonic regression model with HBS data:

$$\ln\left(RENT_{ij}\right) = \alpha + \beta_1 X_{ij} + \beta_2 LOCATION_{j(1)} + \varepsilon_{ij}$$

where $RENT_{ij}$ is either observed or imputed rents for household i in location j, X_{ij} is a vector of housing characteristics, and $LOCATION_{j(1)}$ is the geographic domain to distinguish prices relative to the base location j =1. $\widehat{\beta_2}$ is the log of a housing price index. Distinguishing housing prices between urban and rural areas is challenging if rent observations are limited in the latter.

$$\ln EXP_i = \alpha + \beta_1 DOU_{j(i)} + \beta_2 X_i + \beta_3 SPDEF_{j(i)} + \gamma_{c(i)} + \varepsilon_i \tag{5}$$

$$\ln EXP_i = \alpha + \beta_1 DB_{j(i)} + \beta_2 X_i + \beta_3 SPDEF_{j(i)} + \gamma_{c(i)} + \varepsilon_i \tag{6}$$

where $\ln EXP_i$ is the natural logarithm of household i's consumption expenditures in location *j(i)* and country *c*. $DOU_{j(i)}$ and $DB_{j(i)}$ indicate the type of DOU and DB areas, respectively, with other rural areas as the reference category. X_i is a vector of household characteristics, such as the age, sex, and education of the household head. While we control for employment in some specifications, that is for robustness check as the change in employment is a key location effect. $\gamma_{c(i)}$ represents country fixed effects, and ε_i is the household-level error term. We also include spatial deflators, *SPDEF*, to control for spatial price differentials and examine the association between household locations and real consumption expenditures. The vector of parameters β_1 indicates positive or negative correlation between different types of DOU and DB areas and the level of household welfare.

To analyze poverty rates, we specify the following linear probability models (LPM):

$$POV_i = \alpha + \beta_1 DOU_{j(i)} + \beta_2 X_i + \gamma_{c(i)} + \varepsilon_i \tag{7}$$

$$POV_i = \alpha + \beta_1 DB_{j(i)} + \beta_2 X_i + \gamma_{c(i)} + \varepsilon_i \tag{8}$$

where POV_i indicates the poverty status of household i in location *j(i)* and country c (1=poor; 0=nonpoor). Similar to equations (5) and (6), we include $DOU_{j(i)}$ and $DB_{j(i)}$ as dummy variables for different types of areas, X_i as the vector of household characteristics, $\gamma_{c(i)}$ as country fixed effects, and ε_i as the household-level error term.

It is important to acknowledge that there may be potential endogeneity issues that could overstate the importance of location, even after controlling for observed household characteristics. Unobserved characteristics, such as individual's "ability" and/or "grit," may be correlated with both location and welfare levels. Additionally, households may choose their location based on the local poverty rate, which can affect an area's density and, consequently, its urban status, leading to bias from reverse causation. Unfortunately, the cross-sectional nature of our dataset limits our ability to include household fixed effects. The use of instrumental variables or structural econometrics is beyond the scope of this paper. Nevertheless, it is crucial to describe the contributions of different factors, such as urbanization, region, and individual characteristics, to the variations in poverty.[26]

5 Results

5.1 Household characteristics by location

We start by analyzing mean household characteristics across DOU and DB areas (Table 4). In the DOU classification (columns 4 to 6), we observe that the mean education level of household heads is highest in urban centers, followed by urban clusters and rural areas. Additionally, more than half of the household heads in urban centers work in the service sector, while those in rural areas are predominantly engaged in agriculture. However, there are also significant variations across countries, as depicted in Figure 3. Furthermore, access to basic services, such as water, sanitation, and electricity is generally better in denser areas, which aligns with previous research findings (e.g., Henderson et al., 2019). Turning to the DB classification (columns 7 to 10), we

[26]It is worth noting that equations (5) and (6) are a version of a specification commonly used to estimate agglomeration effects based on the log of nominal wages on the left-hand side and the log of the population at the city or metropolitan areas on the right-hand side (Combes and Gobillon, 2015). The endogeneity problems described here are similar to those that characterize the empirical agglomeration economies literature.

Table 4: Mean household characteristics across urban versus rural areas in 16 SSA countries

		Official definition		DOU			DB			
	All	Urban	Rural	Urban center	Urban cluster	Rural	Core	Suburb	Town	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Demographic:										
Household size	6.55	6.18	6.71	6.31	6.41	6.67	6.52	6.11	7.07	6.59
Age of household head	40.31	42.51	39.30	43.29	41.00	39.04	41.40	34.81	43.60	41.46
Household head is male	0.78	0.73	0.81	0.73	0.76	0.81	0.75	0.79	0.81	0.80
Education (of household head):										
No education	0.37	0.20	0.45	0.18	0.29	0.47	0.26	0.40	0.51	0.40
Primary complete or incomplete	0.39	0.33	0.42	0.31	0.44	0.40	0.34	0.45	0.34	0.44
Secondary complete or incomplete	0.18	0.33	0.11	0.35	0.20	0.11	0.28	0.12	0.14	0.13
Tertiary complete or incomplete	0.06	0.15	0.02	0.16	0.07	0.02	0.12	0.04	0.02	0.03
Employment (of household head):										
Not in labor force	0.12	0.13	0.11	0.14	0.11	0.11	0.12	0.11	0.10	0.13
Unemployed	0.03	0.04	0.02	0.05	0.02	0.02	0.04	0.02	0.02	0.03
Employed in Agriculture	0.52	0.14	0.71	0.07	0.48	0.70	0.26	0.66	0.70	0.65
Employed in Industry	0.08	0.14	0.05	0.15	0.09	0.05	0.12	0.06	0.05	0.05
Employed in Services	0.26	0.55	0.12	0.58	0.30	0.13	0.46	0.16	0.13	0.15
Access to basic services										
Improved water	0.69	0.84	0.62	0.88	0.75	0.61	0.82	0.63	0.63	0.60
Improved sanitation facility	0.24	0.40	0.17	0.46	0.27	0.16	0.37	0.15	0.20	0.19
Access to electricity	0.48	0.82	0.32	0.85	0.53	0.33	0.69	0.36	0.39	0.34

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods.

find that the gaps in household characteristics between urban cores and other areas are narrower. On several indicators, people in rural towns appear to be worse off compared to those in other rural areas. Specifically, compared to other rural areas, households in rural towns have lower education levels and are more likely to work in agriculture.

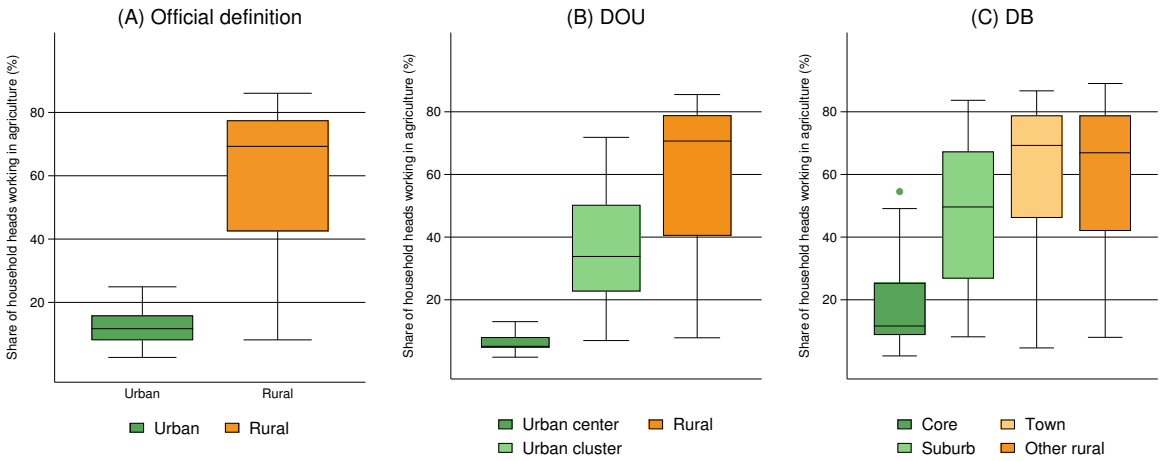
Using our microdata approach, we can also analyze the profile of the extreme poor based on location. The comparison of characteristics of poor households across DOU classifications (columns 2 to 5 in Table A2 in Appendix A) reveals some distinct features. For instance, the urban poor tend to have higher levels of education compared to the rural poor. Approximately 29 percent of poor household heads in urban areas have not completed any education, compared to 49 percent among rural poor households. Employment patterns also differ significantly between urban and rural areas. While the majority of poor rural household heads work in agriculture, around half of the poor heads in urban centers are employed in the industry and service sectors. Notably, there are also differences between urban centers and urban clusters. For example, about 61 percent of the poor household heads in urban clusters still work in the agriculture sector, compared to 19 percent in urban centers. In terms of access to basic services, it is not surprising that the rural poor are the most deprived group. The urban poor households have improved access to water at a similar level to non-poor households. However, their access to improved sanitation is extremely low, with only around 32 percent having access even in urban centers. Access to electricity is also limited among the poor households in urban clusters (29 percent). In the case of the DB classifications (columns 6 to 10), the characteristics of the poor present similar results between urban and rural areas. However, it is worth noting that towns appear less educated, with more agricultural workers, and less access to basic services than rural areas.

5.2 Poverty incidence

Are poverty rates lower in urban than in rural areas?

The comparisons of poverty rates across different types of geographic area in 16 SSA countries (Figure 4) reveal that poverty rates tend to be lower in denser areas, regardless of the global

Figure 3: Share of household heads working in agriculture across urban versus rural areas



Source: International Urban Poverty Database.
Note: Each boxplot shows the share of household heads working in agriculture over different geographic areas in 16 SSA countries. WorldPop 250m is used for the DOU and DB methods.

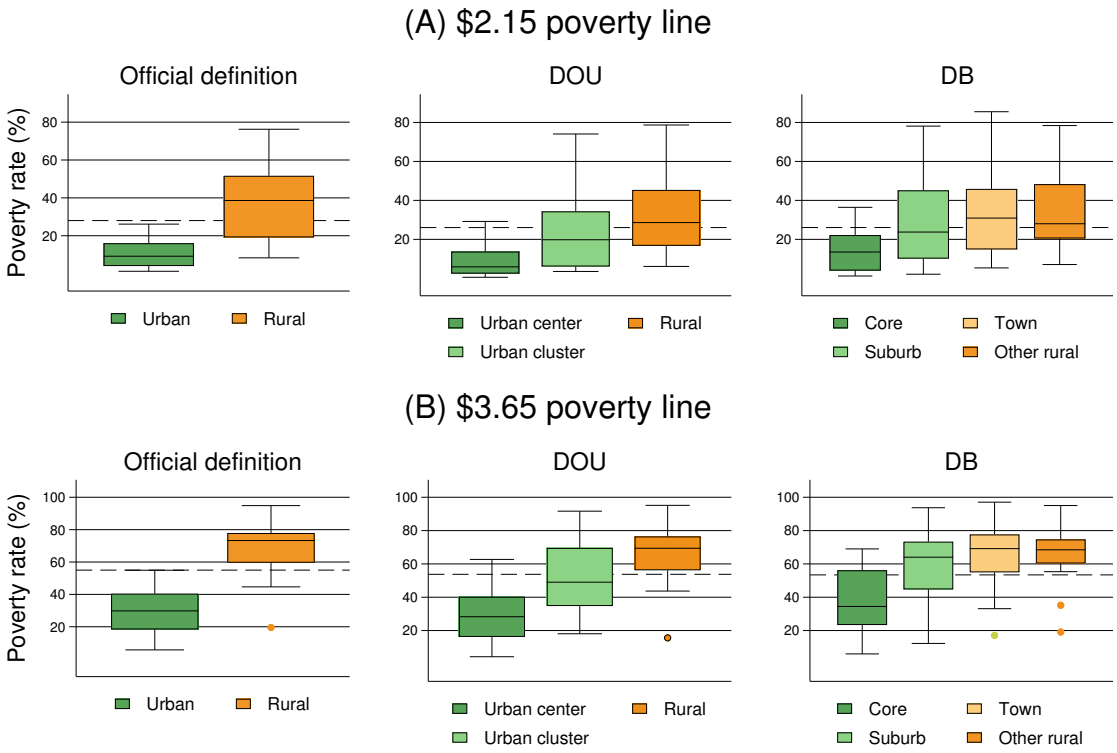
poverty line considered ($2.15 or $3.65) or the method of urban delineation (official, DOU or DB) used. When using the extreme poverty line of $2.15 (Panel A), urban poverty rates are generally lower than rural poverty rates when urban areas are defined based on each country's official definition. With the DOU approach, poverty rates are lowest in urban centers, followed by urban clusters and rural areas. In the case of the DB approach, poverty rates are lowest in urban cores, followed by suburbs, towns, and other rural areas. These patterns hold even when a higher poverty line is used (Panel B). This negative correlation between density and poverty is observed in almost all countries, as shown in Figure A4 in Appendix A.

It is interesting to note that poverty rates in denser urban areas, such as urban centers in the DOU approach and urban cores in the DB approach, are significantly lower than in other types of area. On the other hand, less dense urban areas, like urban clusters in the DOU approach and suburbs in the DB approach, tend to have poverty rates relatively close to rural areas.

The adoption of DOU and DB approaches leads to an increase in urban poverty rates as more rural households are reclassified as urban households. This finding is consistent with the study by Combes et al. (2023), which suggests that official national definitions of urban areas tend to underestimate levels of urbanization in African countries. Figure 5 compares urban poverty rates based on the official urban definitions (x-axis) and DOU or DB definitions (y-axis). Countries closer to the 45-degree line have similar poverty rates for both definitions. Several countries have higher urban poverty rates in the DOU or DB approaches than in the official urban definition, as they appear above the 45-degree line. For example, the urban poverty rate in Malawi (MWI) is more than 50 percent in the DOU and DB approaches, a significant increase from 20 percent with the official urban definition. Similar substantial increases are observed in a few other countries, such as Niger (NER) and Uganda (UGA). The comparison of urban poverty rates in the DOU and DB approaches in Panel C show that most countries have similar poverty rates between the two approaches, with a handful of countries (such as Malawi, Niger, Chad [TCD], etc.) having higher poverty rates with the DB approach.

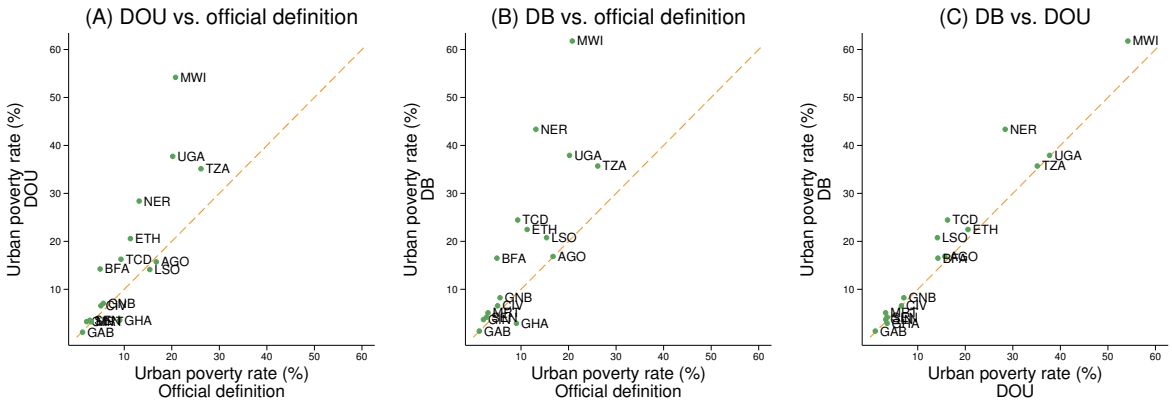
While the negative cross-country correlation between poverty rates and GDP per capita is well known (see Panel A in Figure A1 in Appendix A), it is unknown whether such a correlation is observed for urban and rural poverty rates. Figure A8 demonstrates a linear relationship between urban and rural poverty rates observed across countries: countries with lower urban poverty rates also tend to have lower rural poverty rates. As a result, when urban areas are defined by the DOU or DB methods, urban and rural poverty rates tend to be lower in countries with higher per capita GDP levels (Figure A9 in Appendix A).

Figure 4: Poverty rates across urban versus rural areas



Source: International Urban Poverty Database.
Note: Each boxplot shows the distributions of poverty rates over different geographic areas in 16 SSA countries. WorldPop 250m is used for the DOU and DB methods. The dashed lines represent the average national poverty rate in the sample.

Figure 5: Comparison of urban poverty rates between official and DOU/DB urban definitions



Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Are urban households better off than rural households after controlling for their characteristics?

We investigate whether urban households are better off compared to rural households, taking into account their observed characteristics. We specifically focus on household welfare and examine the results from estimating equations (5) and (6), which are summarized in Table 5 for the DOU classification and Table 6 for the DB classification. The dependent variable in both cases is the log of nominal per capita household expenditures. Columns 1 to 4 of the tables exclude spatial deflators, while columns 5 to 8 include these deflators. Different combinations of controls are added across the columns, including demographic controls (household size, household head's age, sex, and marital status), education controls (household head's highest level of education attainment), and employment characteristics controls (household head's employment status and economic sectors). The full results can be found in Table A3 and Table A4 in Appendix A.

The results indicate that regardless of whether we use the DOU or DB approach to define urban areas, household consumption is higher in urban areas, particularly in dense urban areas, even after controlling for observed household characteristics. Adding spatial deflators and each type of control reduces the coefficient estimates for urban categories. With control of demographic and education characteristics, the nominal consumption is 65.5 percent higher in urban centers and 11.1 percent higher in urban clusters compared to rural areas (column 2 in Table 5). Further controlling for employment differences reduces the location premium to 46.1 percent in urban centers and 6.2 percent in urban clusters (column 3). The coefficient estimate for urban centers remains high even when limiting the sample to urban households (column 4). With additional control of spatial prices, real welfare in urban centers is higher by 49.9 percent (without employment controls in column 6) and 34.4 percent (with employment controls in column 7) compared to rural areas. The welfare premium in low-dense urban clusters becomes smaller with spatial deflators, 7.0 percent in column 6, though it is still quite large.

Similarly, with the DB approach, urban households, primarily those in urban cores, appear to have higher consumption expenditures. After controlling for household characteristics (except employment differences) and spatial price differentials, the real consumption of households in urban cores is 28.3 percent higher than those in other rural areas (column 6 in Table 6). Additional control of employment differences reduces the premium to 16.8 percent in urban cores (column 7). The real expenditures of households in suburbs are similar to those in other rural areas, while rural towns have lower real expenditure levels than other rural areas.

Is urban poverty lower even after controlling for individual and household characteristics?

Table 7 reports the results of estimating equations (7) and (8), where the dependent variable is the poverty status of each household (1=poor; 0=non-poor). The table shows the results for three poverty lines: \$2.15, \$3.65, and \$6.85. Panel A presents the results for the DOU method, while Panel B presents those for the DB method.

Consistent with the pattern observed in Figure 4, Table 7 indicates that compared to rural areas, DOU and DB urban areas, particularly dense urban areas, have significantly lower poverty rates. This pattern holds regardless of the poverty line considered. However, the estimated coefficients are somewhat larger for higher poverty lines. While the coefficient estimates for urban cores are all significantly negative, we find some positive and statistically insignificant coefficients for suburbs and rural towns, for extreme poverty particular, suggesting that these areas can concentrate even more extreme poverty than fully rural areas that are even less dense. Living in urban centers and urban clusters, compared to living in a rural area, is associated with a 11.3 and 1.6 percentage points lower likelihood of being extreme poor, respectively (Column 2, using the \$2.15 poverty line and demographic and education controls). Living in urban cores is associated with a 7.3 percentage points lower likelihood of living in extreme poverty, similar to urban centers.

The poverty gradient over density is clearer in some countries. We estimated equations (7) and (8) for each country and plot the estimated coefficients for the DOU and DB locations in Figure A10 and Figure A11 in Appendix A. The plots show the poverty gradient over density,

Table 5: Estimation results of regressions on log expenditures with DOU classifications

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Urban center	0.809***	0.504***	0.379***	0.367***	0.659***	0.405***	0.296***	0.296***
	(0.009)	(0.009)	(0.010)	(0.010)	(0.012)	(0.011)	(0.011)	(0.011)
Urban cluster	0.203***	0.105***	0.060***		0.146***	0.068***	0.028***	
	(0.009)	(0.008)	(0.008)		(0.010)	(0.009)	(0.008)	
Spatial deflator					0.690***	0.475***	0.412***	0.588***
					(0.038)	(0.032)	(0.031)	(0.052)
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Education	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Employment	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*	*No*
Adjusted R2	0.548	0.663	0.673	0.626	0.553	0.665	0.674	0.630
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134548	134548	134548	75505	134548	134548	134548	75505

Source: International Urban Poverty Database.
Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. WorldPop 250m is used for the DOU method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Urban center" or "Urban cluster") are included in specifications (4) and (8). The baseline category is "Rural" in all specifications, except (4) and (8), where it is "Urban cluster". Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

with high-density areas (urban centers and urban cores) having a higher premium. The density effects are particularly large in some countries, including Malawi, Niger, Uganda, and Angola. In these countries, urban centers and urban cores have a substantially higher premium than low-density urban areas. In the case of Tanzania, there is no premium observed in low-density urban areas. As regards the DB approach, towns, which are classified as rural, are poorer than cores and suburbs for most countries, and even poorer than fully rural places in Niger, Angola, and Tanzania.

5.3 Spatial distribution of poverty

Where is the mass of poverty concentrated?

In this section, we examine the spatial distribution of poverty and explore where the majority of poor households is concentrated. When using the official urban definitions, extreme poverty is primarily concentrated in rural areas across the 16 SSA countries studied (Figure 6). In fact, more than 80 percent of the poor populations reside in rural areas in 13 out of 16 countries. However, when we instead use the DOU/DB definitions, the share of rural areas declines, reducing the number of countries with more than 80 percent of poor populations living in rural areas from 13 to 8/2 countries. The median share of the poor in urban areas increases from 12.6 percent in the original urban definition to 20.7 percent in the DOU definition. See Figure A6 and Figure A7 in Appendix A for each country's urban/rural shares.

The reasons behind the concentration of poverty in rural areas in many countries can be attributed to several factors. Firstly, a significant portion of the population still resides in rural areas (e.g., Chad) (Figure A13 in Appendix A). Secondly, poverty incidence is substantially higher in rural areas (e.g., Niger). Interestingly, there is no correlation between the share of poor populations in urban areas and the level of per capita GDP (Figure A12 in Appendix A). While there is a loose correlation observed with the DOU results, the DB results show no correlation. This is because higher GDP per capita is associated with higher urban population shares but lower urban poverty rates, making it difficult to determine the relationship between a country's level of development and the share of its poor population residing in urban areas.

When using the DB approach (Figure 6), the spatial distribution of poor populations shows

Table 6: Estimation results of regressions on log expenditures with DB classifications

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Core	0.550***	0.303***	0.204***	0.270***	0.440***	0.239***	0.155***	0.176***
	(0.010)	(0.009)	(0.010)	(0.009)	(0.011)	(0.010)	(0.010)	(0.010)
Suburb	0.073***	0.004	−0.013		0.068***	0.002	−0.015	
	(0.011)	(0.010)	(0.010)		(0.011)	(0.010)	(0.010)	
Town	−0.022**	−0.049***	−0.038***		−0.039***	−0.059***	−0.046***	
	(0.010)	(0.010)	(0.010)		(0.010)	(0.010)	(0.010)	
Spatial deflator					0.802***	0.502***	0.413***	0.826***
					(0.029)	(0.026)	(0.025)	(0.034)
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Education	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Employment	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*	*No*
Adjusted R2	0.523	0.655	0.667	0.699	0.531	0.658	0.670	0.705
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134787	134787	134787	88450	134630	134630	134630	88450

Source: International Urban Poverty Database.
Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. WorldPop 250m is used for the DB method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Core" or "Suburb") are included in specifications (4) and (8). The baseline category is "Other rural" in all specifications, except (4) and (8), where it is "Suburb". Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

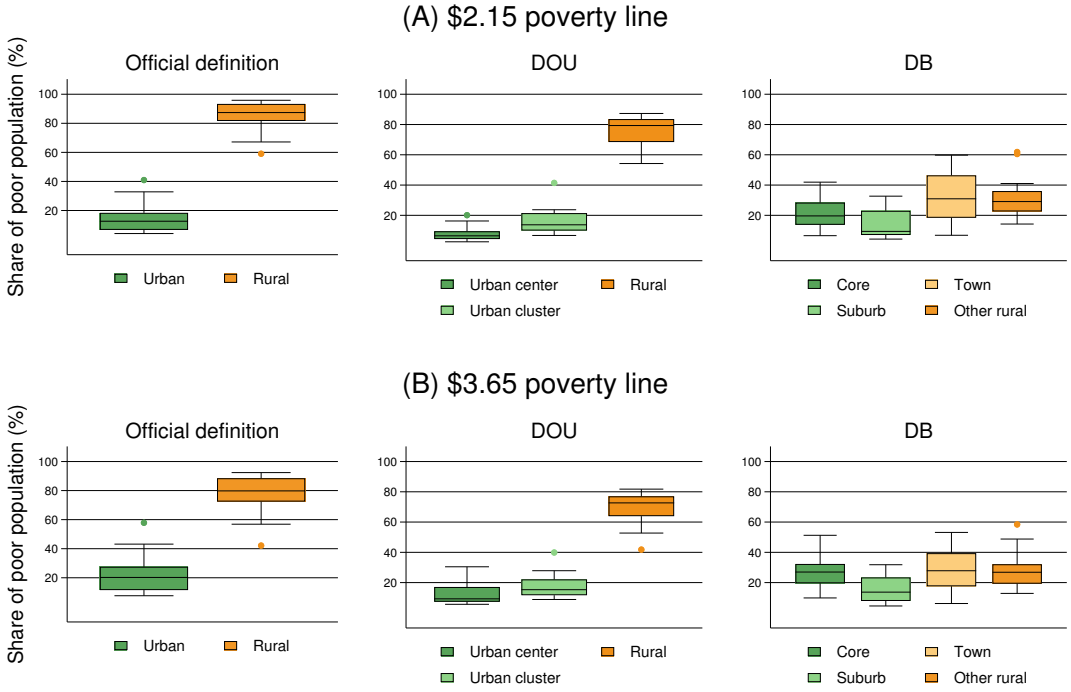
significantly higher urban shares and lower rural shares compared to the results obtained with the official urban definitions. In 4 out of 16 SSA countries, more than half of the poor populations reside in urban areas.[27] It is worth noting that within DB rural areas, towns accommodate a large share of poor populations, even higher than other low-density rural areas in many countries. Additionally, poverty is more concentrated in urban cores than in suburbs. While poverty rates tend to be lower than in the suburbs, the relatively high population shares in urban cores contribute to a greater concentration of poverty there. A higher poverty line further accentuates the difference between dense and less dense urban areas, as density reduces the probability of being poor.

The change in the urban share of poor populations based on the update of urban definitions and spatial deflators differs between the DOU and DB approaches (Figure 7). When shifting from the official urban definitions to the DOU approach (Panel A), a few countries, such as Uganda, Tanzania, and Ethiopia, show substantial increases in the urban shares of the poor. On the other hand, when using the DB approach (Panel B), most countries increase the urban share of poor populations. It is also evident that the urban shares of poor populations are generally higher when the DB approach is used compared to the DOU approach (Panel C). It is important to emphasize that the choice of DOU and DB approaches significantly alters the spatial distributions of poverty. This is not the case for poverty incidence, as observed in an earlier section. The DB approach, being relative and specific to each country, is less sensitive to the overall average population density of the country and better captures the local variations in population density within individual countries, even when they have relatively high or low average population density.

The cross-comparison of urban and poverty status of individuals across the three urban definitions (official, DOU, and DB) confirms that changes in the spatial distributions of poverty are primarily due to the reclassification of the poor from rural to urban areas. Table 8 provides a summary of the reclassifications with and without spatial deflators. When examining the switch from the official urban definition to the DOU approach (Panel A), approximately 21 percent of the non-poor rural population and 17 percent of the poor rural population are reclassified from rural to urban

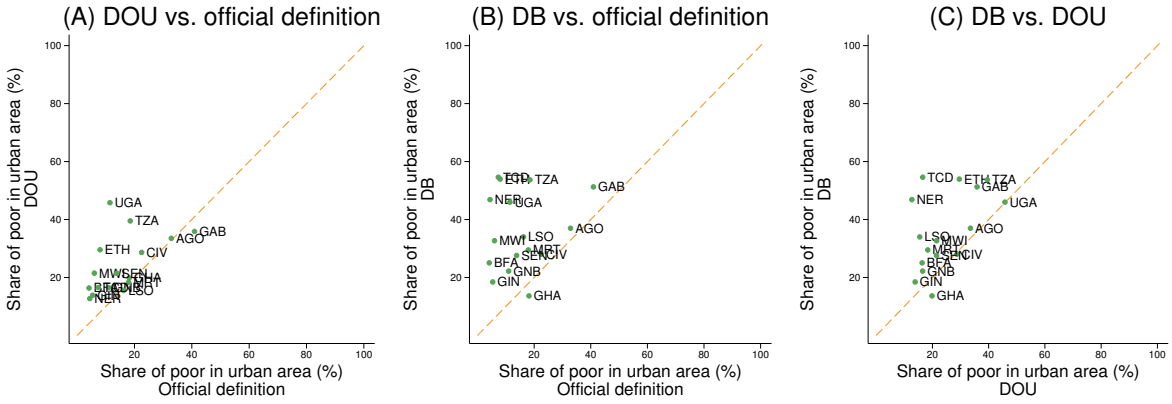
[27] See Figure A6 and Figure A7 in Appendix A for each country's urban/rural shares.

Figure 6: Distribution of poor population across urban versus rural areas



Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Each boxplot shows the distribution of the share of the poor population over different geographic areas in 16 SSA countries.

Figure 7: Comparison of urban shares of poor populations between official and DOU/DB urban definitions in 16 SSA countries



Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Dashed lines are 45-degree lines. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Table 7: Estimation results of regressions on household poverty status

	Poverty status (1 = poor, 0 = non-poor)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	$2.15	$2.15	$2.15	$3.65	$3.65	$3.65	$6.85	$6.85	$6.85
Panel A: DOU									
Urban center	-0.205***	-0.113***	-0.067***	-0.334***	-0.196***	-0.131***	-0.235***	-0.129***	-0.094***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)
Urban cluster	-0.047***	-0.016***	0.002	-0.077***	-0.031***	-0.008	-0.048***	-0.015***	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)
Panel B: DB									
Core	-0.147***	-0.073***	-0.039***	-0.212***	-0.099***	-0.047***	-0.154***	-0.070***	-0.043***
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)
Suburb	-0.010	0.012*	0.018**	-0.014**	0.018***	0.027***	-0.020***	0.002	0.007*
	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)
Town	0.034***	0.043***	0.039***	0.043***	0.054***	0.048***	0.028***	0.033***	0.030***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)	(0.004)	(0.004)	(0.004)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Education	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Employment	No	No	Yes	No	No	Yes	No	No	Yes
Panel A Adj.R^2	0.104	0.164	0.173	0.160	0.263	0.276	0.138	0.249	0.257
Panel B Adj.R^2	0.100	0.167	0.177	0.135	0.254	0.272	0.119	0.244	0.253
Nr. of countries	16	16	16	16	16	16	16	16	16
Nr. of hh	134872	134872	134872	134872	134872	134872	134872	134872	134872

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors in parentheses. WorldPop 250m is used for the DOU and DB method. The dependent variable is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. The baseline category is "Rural" in all specifications in Panel A, and "Other rural" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

areas. Conversely, 13 percent of the urban non-poor population and 23 percent of the urban poor households are reclassified into the rural non-poor and rural poor populations, respectively. The scale of rural-to-urban reclassification is even more significant when transitioning from the official urban definitions to the DB approach (Panel B), with 47 percent of the non-poor and 56 percent of the poor being reclassified. It is worth noting that spatial deflation primarily reduces poverty in rural areas due to their relatively low prices.

5.4 Additional analyses

In this sub-section, we present additional analyses to demonstrate the practical applications of our approach in analyzing other key outcomes, including spatial inequality, non-monetary poverty, and employment.

Spatial inequality

In addition to poverty, the urban and rural dimensions of inequality are a crucial factor in assessing welfare distributions in low- and middle-income countries. By utilizing household-level consumption expenditures from our dataset, we are able to measure inequality using various standard indicators. Our focus lies on the Theil index, which is calculated based on per capita household consumption expenditures and can be easily decomposed into within-group and between-group components.[28]

[28]Similar results are obtained based on another inequality indicator, such as Gini Coefficients (results available upon request).

Table 8: Urban and poverty status changes in 16 SSA countries

(A) Original definitions to DOU		**Non-spatially deflated**				**Spatially deflated**			
Non-poor status:		Non-poor		Poor		Non-poor		Poor	
DOU:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Official urban definition:									
Non-poor	Urban	87.4	12.6	0.0	0.0	86.0	12.7	1.3	0.1
	Rural	21.0	79.0	0.0	0.0	19.0	77.4	1.4	2.2
Poor	Urban	0.0	0.0	77.5	22.5	4.8	2.5	75.1	17.6
	Rural	0.0	0.0	17.1	82.9	0.1	3.0	17.6	79.3

(B) Original definitions to DB		**Non-spatially deflated**				**Spatially deflated**			
Non-poor status:		Non-poor		Poor		Non-poor		Poor	
DOU:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Official urban definition:									
Non-poor	Urban	90.1	3.4	0.0	6.5	92.9	6.5	0.5	0.0
	Rural	46.5	27.2	0.0	26.3	70.2	25.3	3.4	1.0
Poor	Urban	0.0	0.0	91.8	8.2	6.3	1.0	86.2	6.5
	Rural	0.0	0.0	55.5	44.5	1.4	2.2	64.6	31.8

(C) DOU to DB		**Non-spatially deflated**				**Spatially deflated**			
Non-poor status:		Non-poor		Poor		Non-poor		Poor	
DB:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
DOU:									
Non-poor	Urban	96.3	1.8	0.0	1.9	97.6	1.9	0.5	0.0
	Rural	34.6	32.0	0.0	33.3	64.7	32.3	2.3	0.7
Poor	Urban	0.0	0.0	96.9	3.1	7.0	0.3	90.3	2.4
	Rural	0.0	0.0	44.7	55.3	1.1	2.2	58.9	37.9

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line. In Panel (A), welfare is deflated using official spatial deflators. In Panel (B) and (C), welfare is deflated using our updated spatial deflators.

The Theil indexes range from 0.13 to 1.06 nationally among the countries analyzed in this study (Figure A14 and Figure A15). In most countries, urban Theil indexes are higher than rural Theil indexes, with a few exceptions such as Lesotho, Gabon, and Mauritania in the DOU definition, as well as Ghana and Gabon in the DB definition. The higher urban inequality is not surprising, as urban areas tend to accommodate wealthier populations. However, we did not find a clear pattern between Theil indexes, whether at the national or subnational level, and a country's GDP per capita.[29]

To further explore inequality, we examine two factors: 1) inequality within urban and rural areas, respectively, and 2) inequality between urban and rural groups. The decomposition of Theil indexes into between-group and within-group factors, as shown in Figure A16 and Figure A17 in Appendix A, reveals that within-group inequality is higher in all countries for both the DOU and the DB approaches.

[29]This lack of pattern may be attributed to the focus of this paper on low-income countries. In general, a Kuznets curve (Kuznets, 1955) is observed for countries worldwide (see Panel D in Figure A1), indicating that inequality widens as the economy further develops and then declines at the high-income stage.

The consumption gains of urban households, compared to rural households, can be attributed to differences in endowments rather than differences in returns to those endowments. The disparity in consumption levels between urban and rural households can be decomposed into two components based on the Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973): the difference in endowments (i.e., observed household characteristics, such as educational attainment and access to basic services) and the returns to those endowments. We conducted this decomposition analysis for each country. The results of the decompositions, as shown in Figure A18, indicate that the differences in endowments account for a significant portion of the consumption gaps between urban and rural areas. Furthermore, the disparity in endowments also plays a dominant role when analyzing the consumption gaps between densely populated and less densely populated urban areas.

Non-monetary poverty

We can also analyze non-monetary poverty indicators, such as access to improved water sources, sanitation facilities, and electricity, using our dataset. To do this, we conducted regression analyses by replacing the outcome variable in equations (7) and (8) with dummy indicators representing access to each type of service. The results, presented in Table A5 in Appendix A, indicate that households residing in less densely populated areas are generally less likely to have access to improved water sources, sanitation facilities, and electricity. There is one exception, however, as observed in column 6 of Panel B under the DB delineation, where there is a slightly improved access to sanitation in suburbs compared to cores. This result may be driven by the presence of densely populated, yet underdeveloped slum areas, where infrastructure development is constrained due to a lack of available space. In other cases, households living in less dense areas have significantly lower access to basic amenities. This pattern holds across different types of amenities and is robust across delineation methods and the inclusion of various controls. Furthermore, when controlling for income (columns 2, 5, 8), the pattern remains consistent, indicating that that lower access to water, sanitation and electricity in less densely populated areas cannot be fully explained by higher incomes in more densely populated areas. Additionally, the results do not significantly change when controlling for demographic characteristics, education, and employment. In summary, our findings provide evidence that residents of less densely populated areas not only experience higher rates of monetary poverty but are also more susceptible to non-monetary forms of deprivation.

Employment across locations

We also examine the employment patterns across different locations, considering the potential connection between spatial transformation (from rural to urban) and structural transformation (from agricultural to non-agricultural jobs). To investigate this, we estimated household-level regression models, using the employment shares in the agriculture and service sectors as the dependent variables. The results, which are presented in Table A6 in Appendix A, indicate that areas with lower population density tend to have a higher proportion of agricultural workers, while more densely populated areas tend to offer more employment opportunities in the service sector. This result remains consistent even after controlling for a set of observed household characteristics. Although this analysis is exploratory in nature, it suggests the significance of population density in the generation of productive jobs.

Robustness checks

We replicate the analyses presented above based on WorldPop for 16 SSA countries by changing the gridded population layers to GHSPOP and by adding 4 non-SSA countries (Bangladesh, Colombia, Egypt, and Vietnam). The results in Appendix B and Appendix C, respectively, show that key messages from the main analysis hold.

6 Discussion and conclusion

This study presents a new analysis of internationally comparable urban and rural poverty statistics, utilizing a novel dataset created for 16 SSA countries. By integrating consistent urban delineation approaches into the framework of global poverty measurement, we provide valuable insights into the spatial dimensions of poverty.

Primarily focusing on 16 SSA countries, our analysis highlights the urgent need to address urban poverty in order to accelerate global poverty reduction efforts. Based on internationally consistent urban and poverty measures, we find that urban poverty rates are consistently lower than rural poverty rates in all the studied countries. Notably, poverty incidence in dense urban areas is particularly low, while poverty rates in low-density urban areas are closer to those in rural areas. The patterns hold even when accounting for country fixed effects and controlling for observed household characteristics. The use of the DOU and DB approaches, instead of relying solely on each country's official urban definition, reveals higher urban poverty rates in most countries. However, the choice between the DOU or DB approaches does not significantly impact the results. In terms of the spatial distribution of poverty, our findings challenge previous assumptions by revealing that a larger share of the poor population resides in urban areas than previously thought. While the incidence of poverty may be lower in urban areas, the sheer number of people living in these areas compensates for this, resulting in a significant concentration of poverty. In many of the studied countries, more than half of the poor populations live in DOU/DB urban areas, with dense urban areas accommodating a substantial share of these poor populations. Furthermore, our analysis demonstrates that the choice between the DOU and DB approaches has a critical impact on the spatial distribution of poverty. The DB approach, which is specific to each country and captures local variations in population density, better reflects the concentration of poverty in urban areas. This is particularly evident in countries with either high or low average population density.

From a methodological perspective, our study carries important implications. Our approach allows for the disaggregation of official global poverty statistics into globally consistent urban and rural areas, as well as more nuanced geographic categories along the urban-rural continuum. This is the first study to attempt such an endeavor. We do not exclusively recommend one over the other, as both the DOU and DB approaches have advantages depending on the purpose of the analyses. Additionally, our results highlight the importance of understanding the spatial distribution of poverty at a global scale in order to allocate resources more efficiently and effectively for poverty reduction and the achievement of the SDGs.

While our approach is innovative, it is important to acknowledge its limitations. Firstly, our data is cross-sectional in nature, which means that we cannot fully control for unobserved heterogeneity, such as sorting based on individual abilities, by adding individual fixed effects. Although it is theoretically possible to add more time points to our dataset using GHSPOP and WorldPop data from other years, the comparability of these datasets and the consistency of consumption and poverty measures in HBS over time need to be carefully assessed, which is beyond the scope of this study. Another methodological limitation is the availability of data in the HBS. Our approach can only analyze countries where the location information of geographically disaggregated units is available in the HBS. This data availability in the HBS is crucial to the approach. Furthermore, there is inconsistency in the spatial deflation approach within the current global poverty monitoring system. Many countries measure global poverty without adjusting for subnational cost of living differences. While we apply spatial deflators to such countries, the spatial deflation approaches are not consistent across countries. The quality of the underlying population layers and HBS can also impact our results. The lack of availability of a recently conducted population census, which is common in low-income countries, particularly poses a threat to the quality of gridded population datasets.[30]

[30]For example, Ethiopia's latest population census was conducted in 2007.

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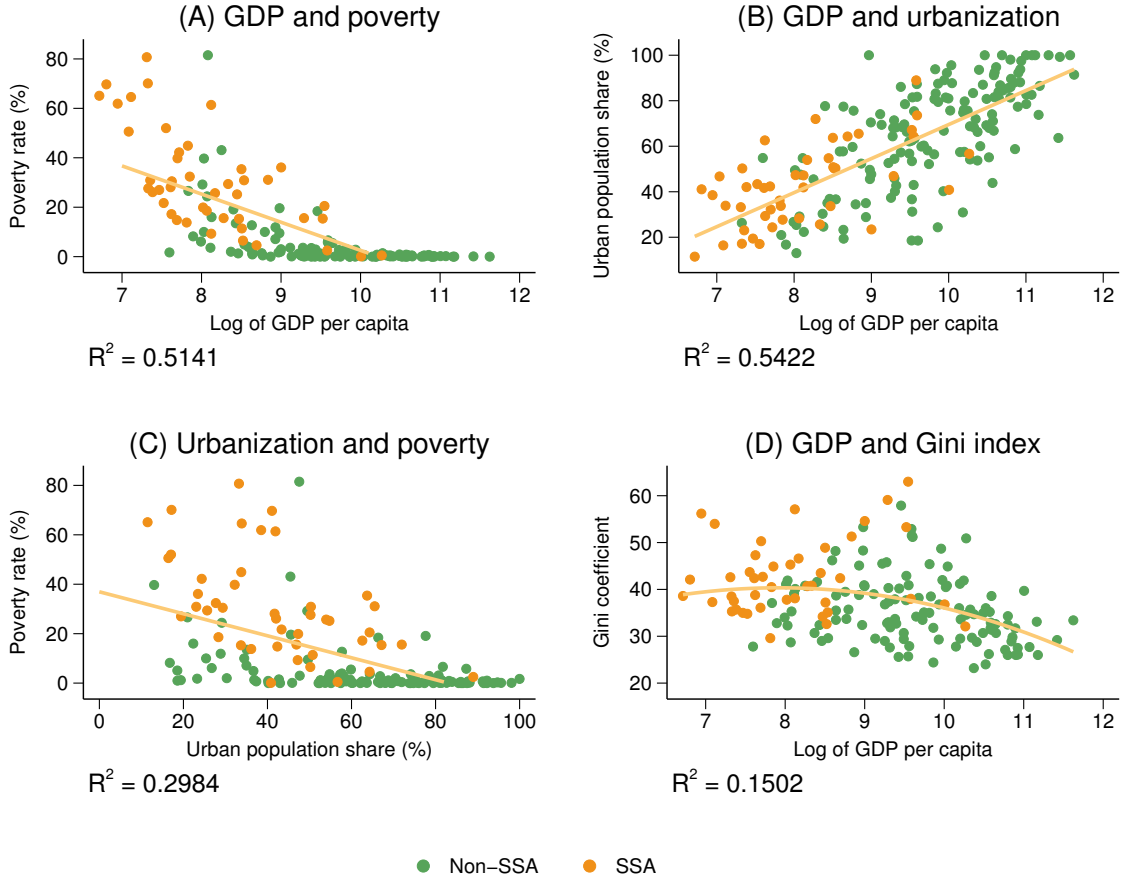
Appendix

A Additional figures and tables

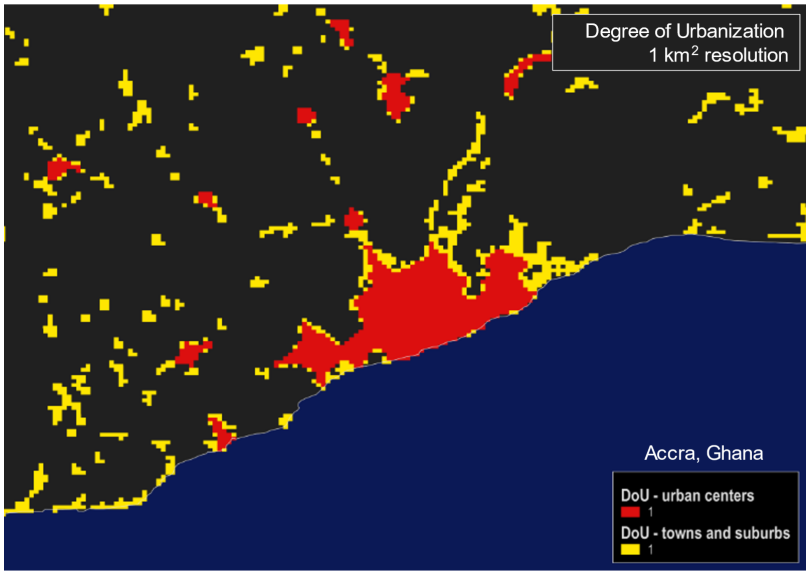
Figure A1: Urbanization, poverty, and inequality



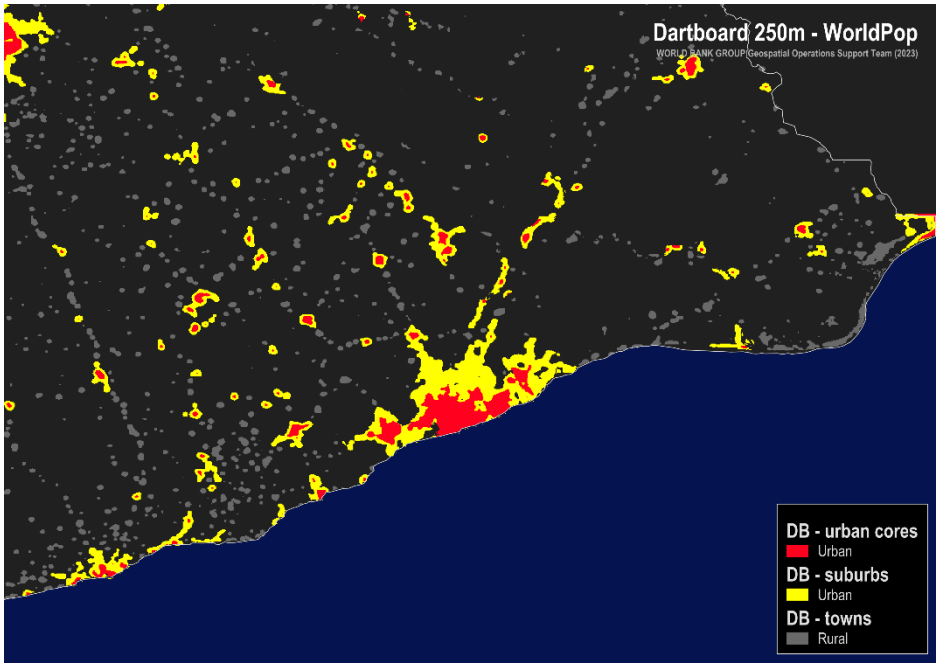
Source: World Development Indicators (World Bank)
Note: Data is derived from World Development Indicators, selecting the most recent year with available data. 163 countries are included in panel (A), (C) and (D), and 193 countries are included in panel (B). Poverty is measured using the $2.15 poverty line. GDP per capita is measured in PPP (constant 2017 international $).

Figure A2: Greater Accra, Ghana, by DOU and DB

(A) DOU

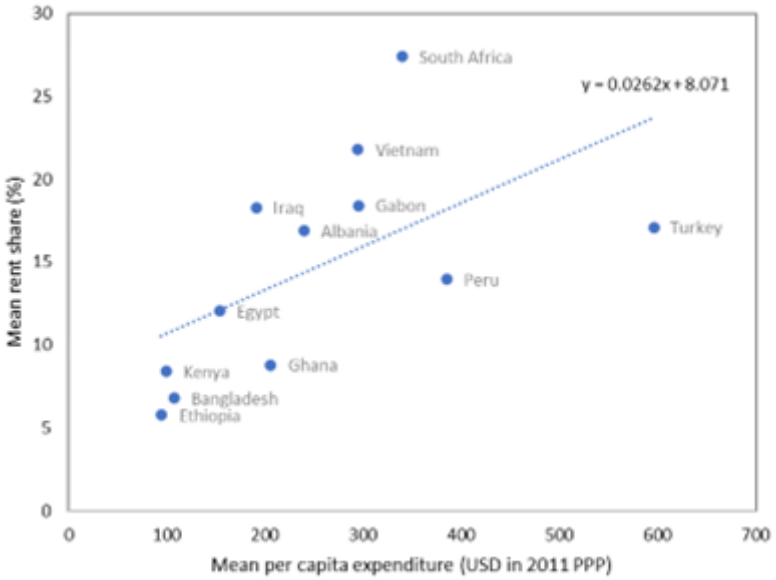


(B) DB



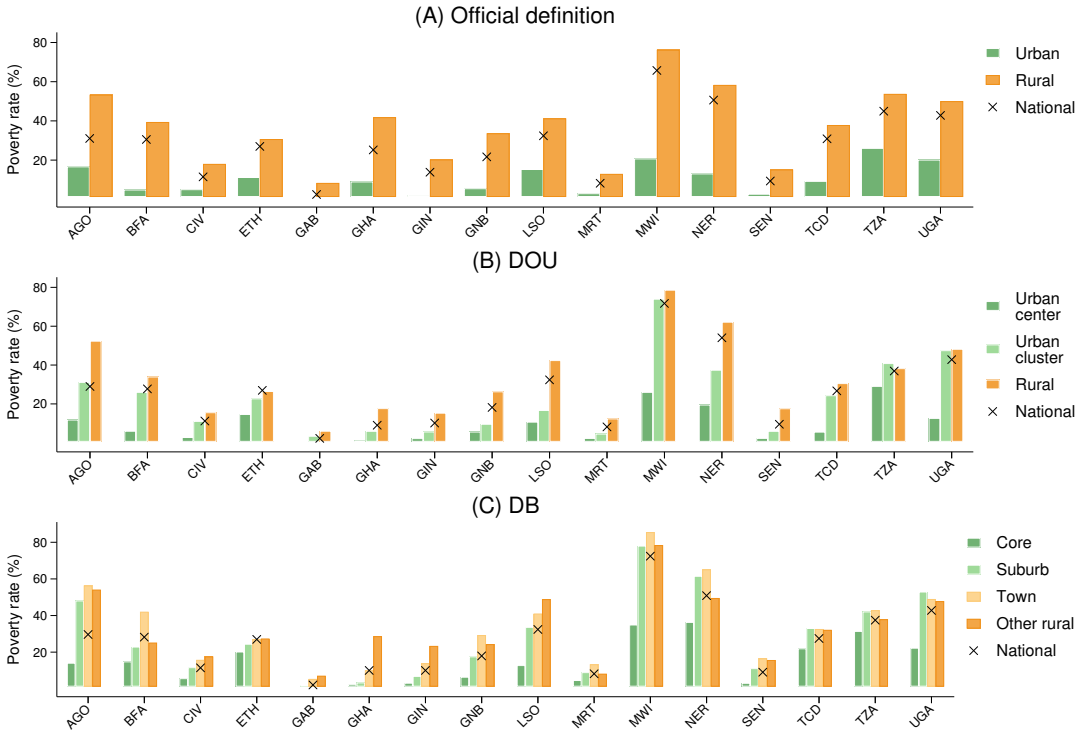
Source: WorldPop.
Note: Rural areas in black.

Figure A3: The share of household budget on housing in 19 low- and middle-income countries



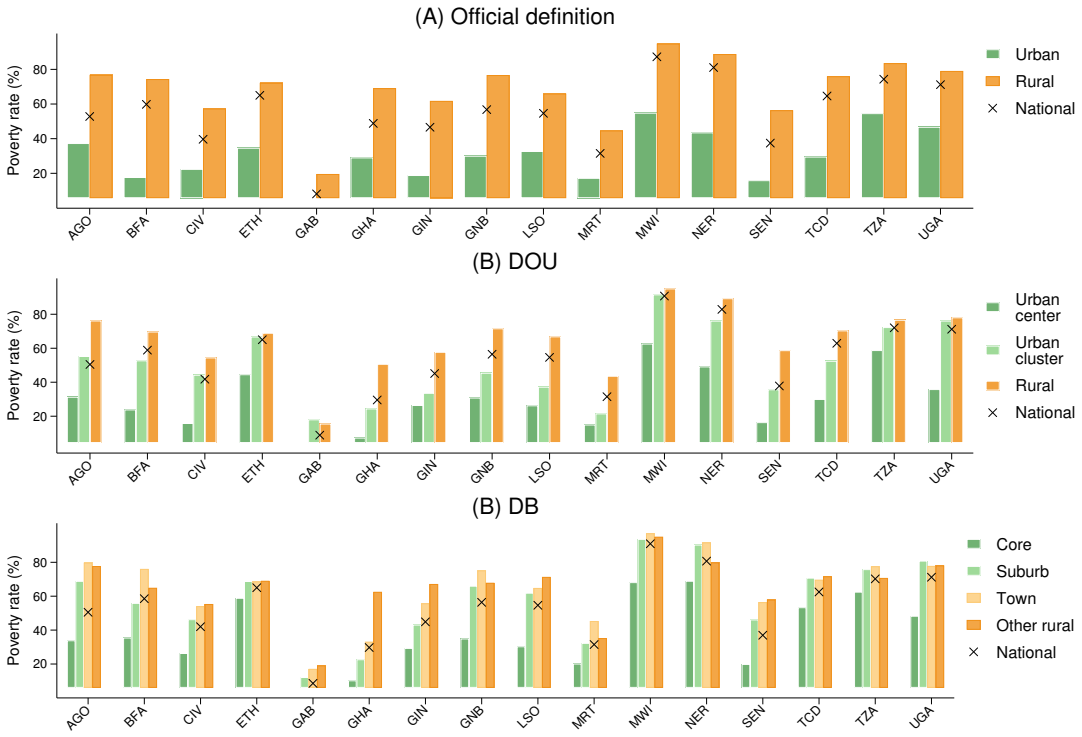
Source: Authors' calculations using each country's household budget survey.

Figure A4: Poverty rates across urban versus rural areas by country, $2.15 poverty line



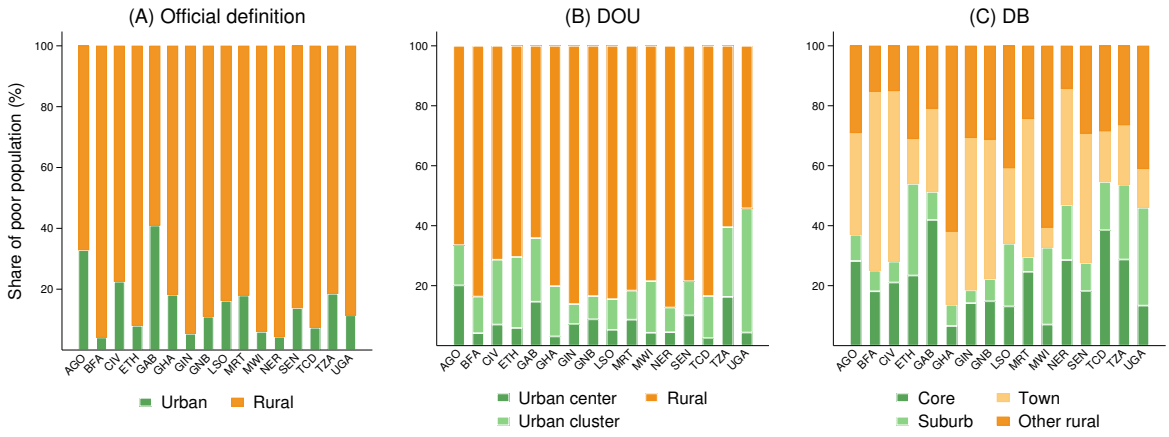
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure A5: Poverty rates across urban versus rural areas by country, $3.65 poverty line



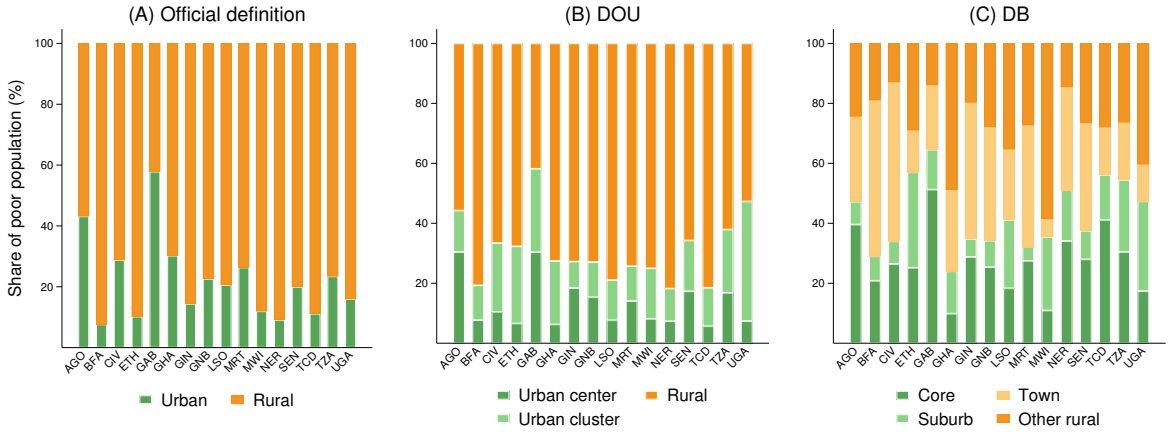
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure A6: Distributions of poor populations across urban versus rural areas by country, $2.15 poverty line



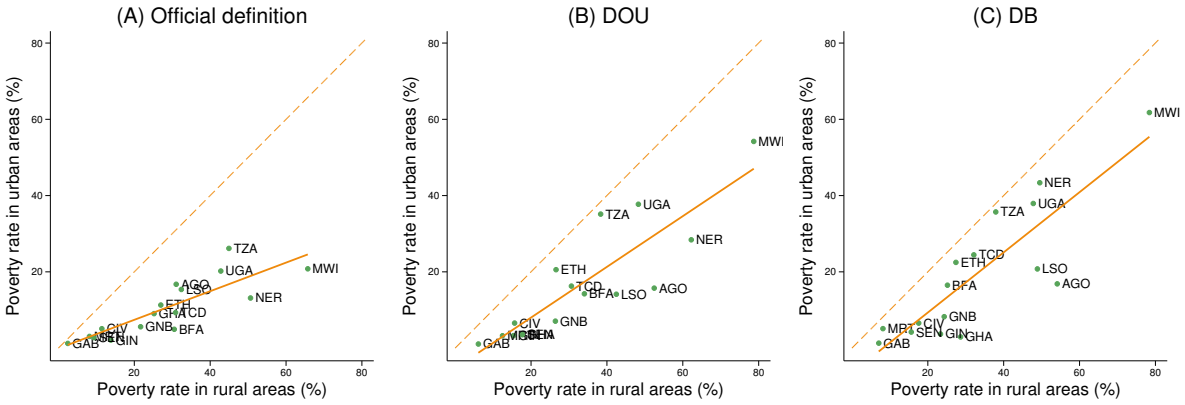
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure A7: Distributions of poor populations across urban versus rural areas by country, $3.65 poverty line



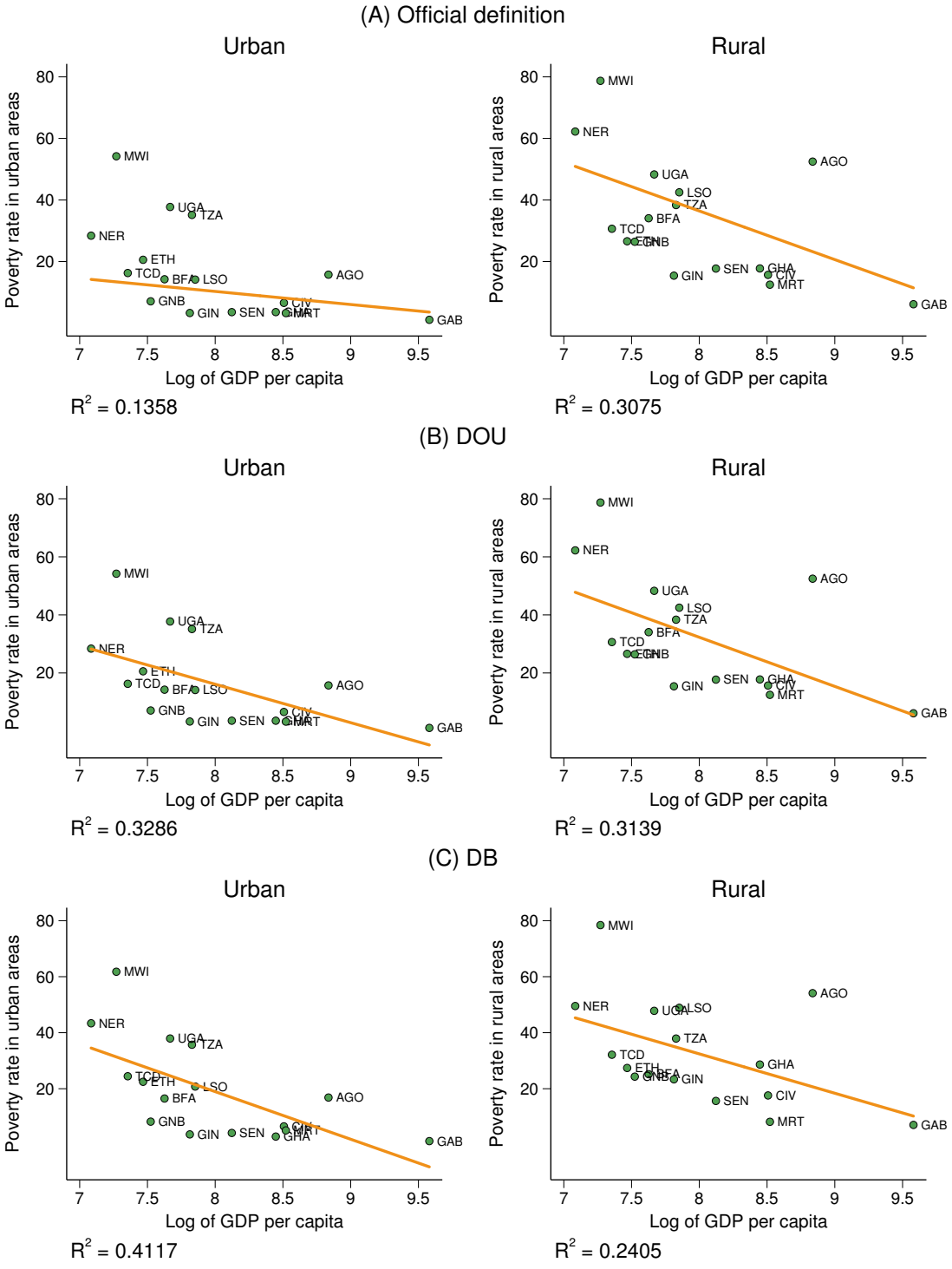
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure A8: Comparison of urban and rural poverty rates



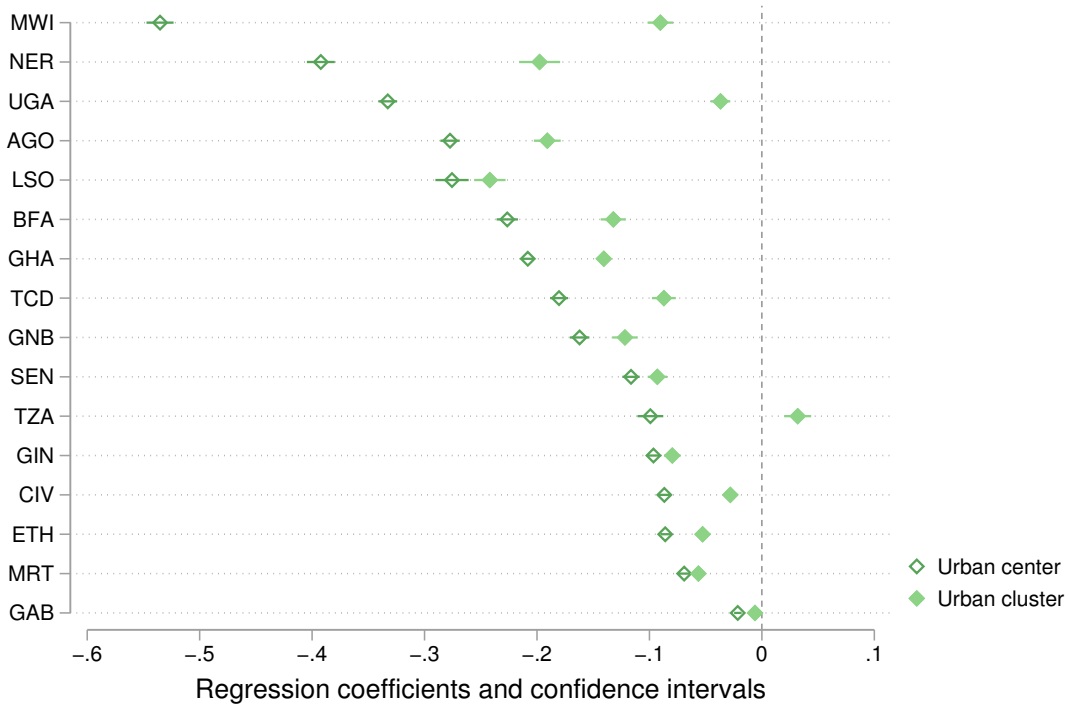
Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Dashed lines are 45-degree lines. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure A9: Urban/rural poverty rates and GDP



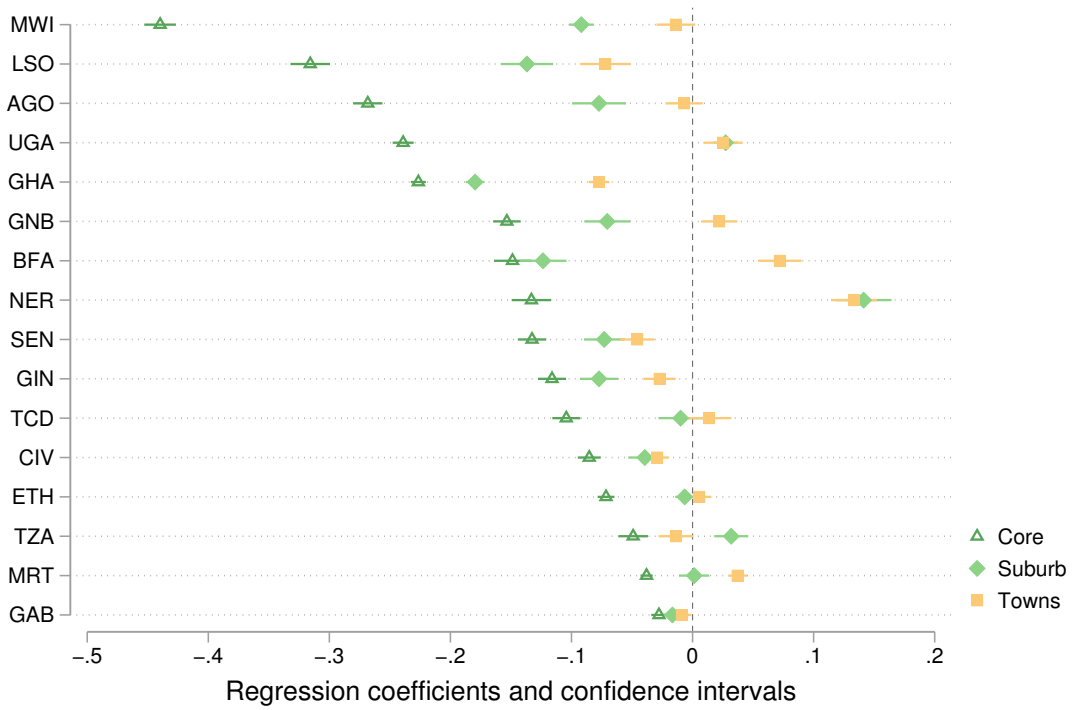
Source: International Urban Poverty Database.
Note: GDP per capita is measured in PPP (constant 2017 international $). For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method. Poverty is measured using the $2.15 poverty line.

Figure A10: Heterogeneity in poverty gradient across countries, DOU



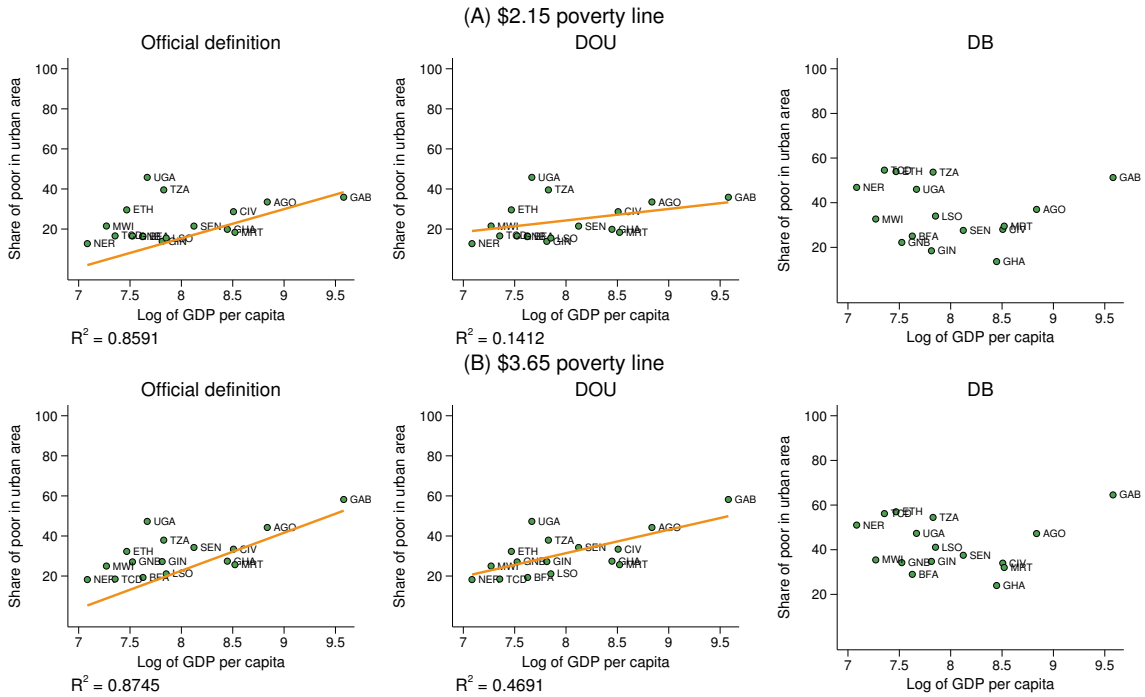
Source: International Urban Poverty Database.
Each dot represents the regression coefficients $DOU_{j(i)}$ of equation 5 for each country c, excluding control variables. Confidence intervals are represented with a line. The dependent variable POV_i is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. $DOU_{j(i)}$ is a vector of dummy variables: "Urban cluster" ("Urban area") takes the value 1 if household i lives in an "Urban cluster" ("Urban area") as defined by the DOU method. The baseline category is "Rural". WorldPop 250m is used.

Figure A11: Heterogeneity in poverty gradient across countries, DB



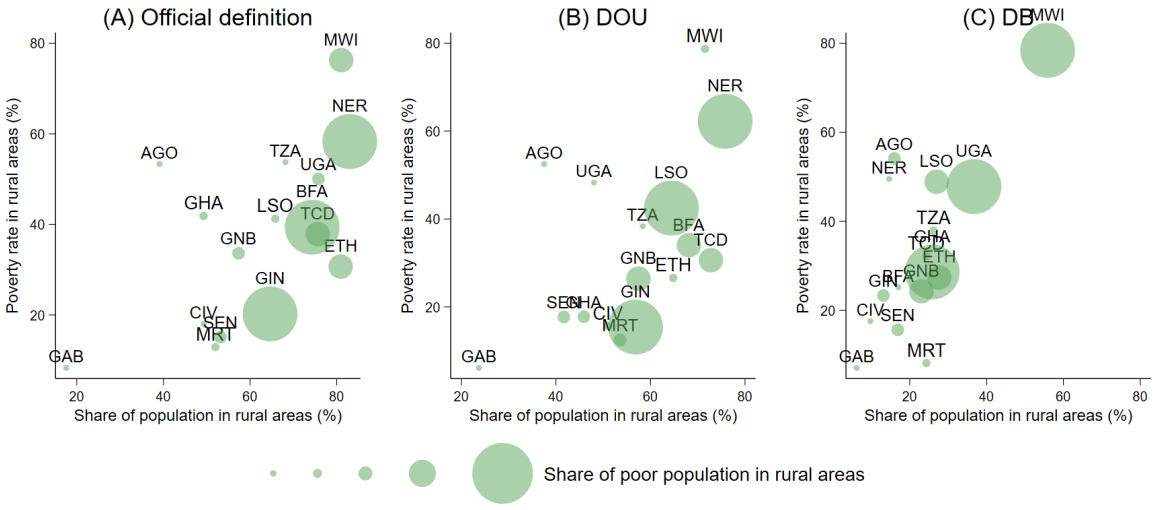
Source: International Urban Poverty Database.
Each dot represents the regression coefficients $DB_{j(i)}$ of regression 6 for each country c, excluding control variables. Confidence intervals are represented with a line. The dependent variable POV_i is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. $DOU_{j(i)}$ is a vector of dummy variables: "Core", "Suburb", "Town" respectively take the value 1 if household i lives in an "Core", "Suburb" or "Town" as defined by the DB method. The baseline category is "Other rural". WorldPop 250m is used.

Figure A12: Share of poor in urban areas and GDP



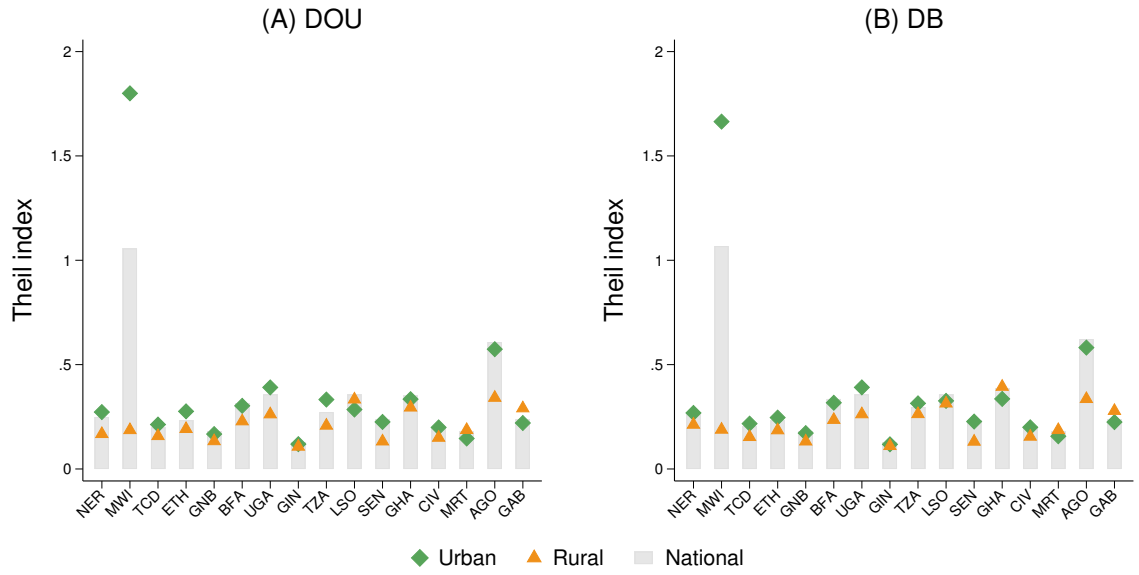
Source: International Urban Poverty Database.
Note: GDP per capita is measured in PPP (constant 2017 international $). For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure A13: Poverty rates, population shares, and poor population shares in rural areas



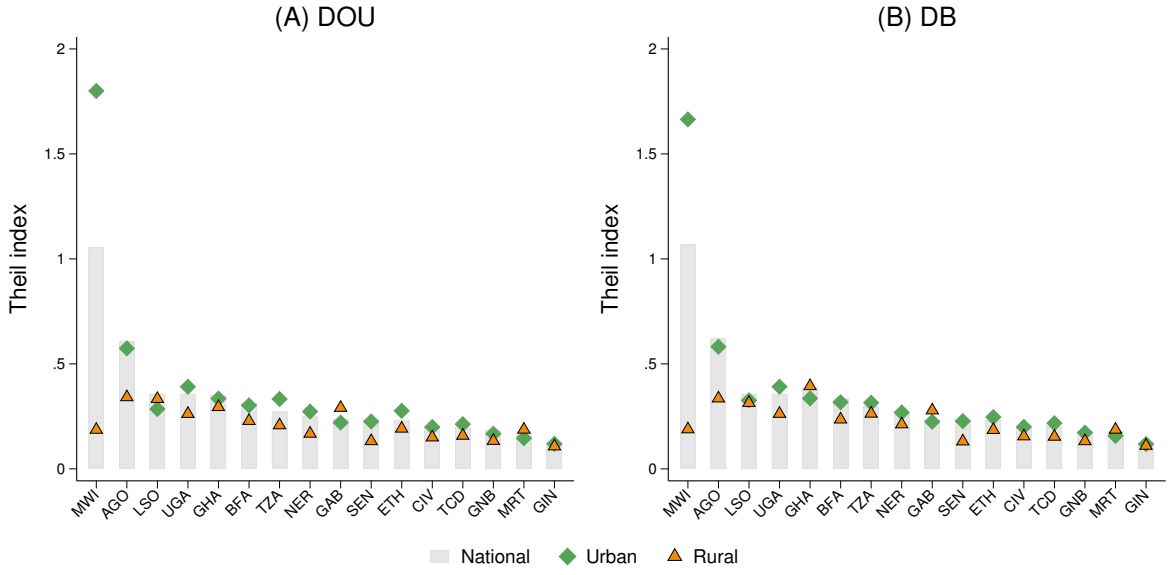
Source: International Urban Poverty Database.
Note: The size of each circle is proportional to the share of the poor population in rural areas for each country. WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line.

Figure A14: Theil indexes at the national level and across urban versus rural areas, sorted by GDP per capita



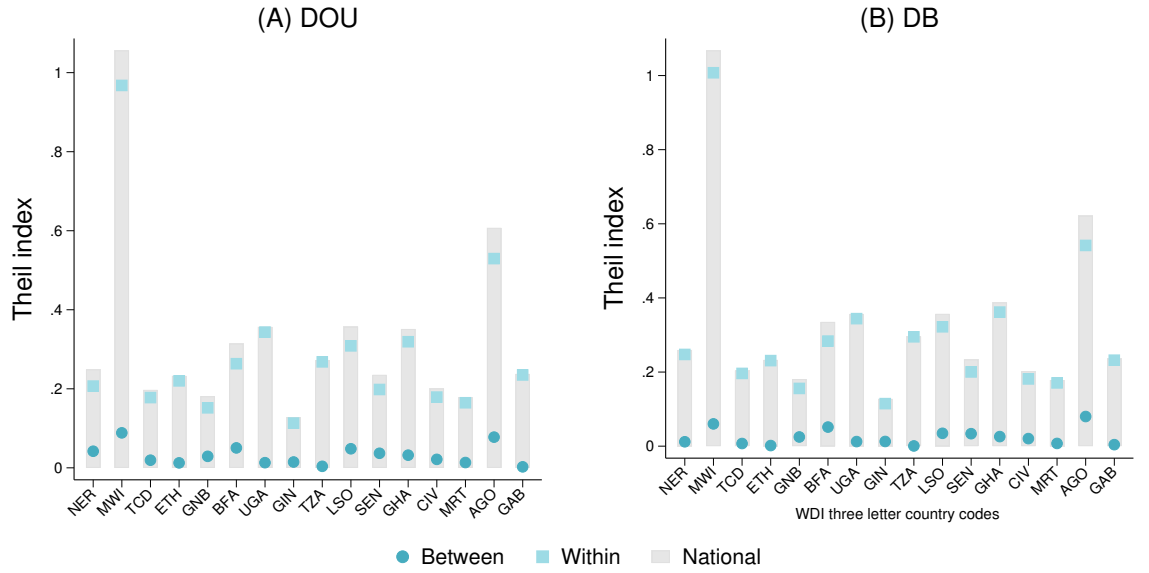
Source: International Urban Poverty Database.
Note: Countries are sorted in ascending order of log of GDP per capita, measured in PPP (constant 2017 international $). WorldPop 250m is used for the DOU and DB methods. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. See Figure A15 for the same chart with countries reordered by the highest to the lowest Theil indexes.

Figure A15: Theil indexes at the national and across urban versus rural areas, sorted by Theil index



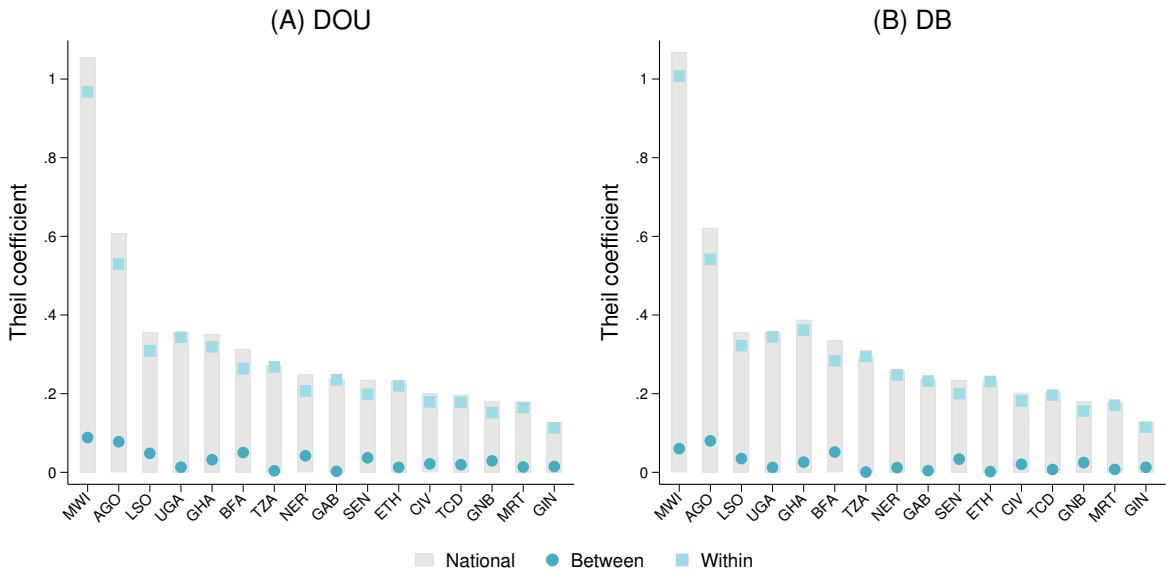
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used. For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure A16: Decomposition of Theil indexes, sorted by GDP per capita



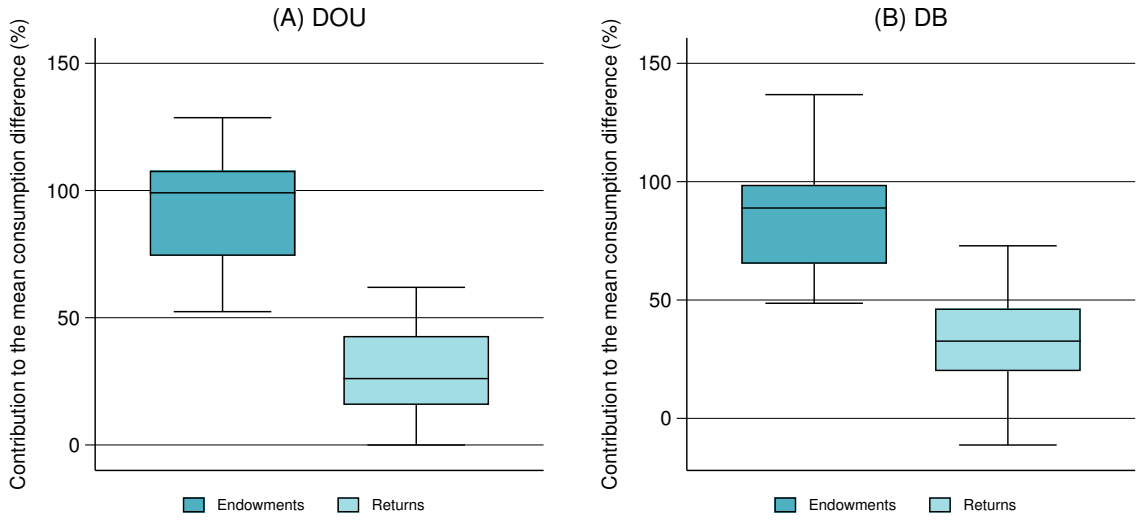
Source: International Urban Poverty Database.
Note: Countries are sorted in ascending order of log of GDP per capita, measured in PPP (constant 2017 international $). WorldPop 250m is used for the DOU and DB methods. See Figure A17 for the same chart with countries reordered by the highest to the lowest Theil indexes.

Figure A17: Decomposition of Theil coefficients and GDP, sorted by Theil index



Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure A18: Decomposition of consumption difference between urban and rural areas



Source: International Urban Poverty Database.
Note: Each boxplot shows the distribution of percentage contribution of (1) endowments and (2) returns to the mean differences in the log per capita consumption expenditures between urban and rural areas in 18 countries based on the Oaxaca-Blinder decomposition. The share of interactions is not shown for the sake of presentation. WorldPop 250m is used for the DOU and DB methods.

Table A1: Summary statistics by country

	AGO	BFA	CIV	ETH	GAB	GHA	GIN	GNB
Number of households	11,822	6,651	11,589	30,255	7,914	14,009	8,243	5,291
Survey years	2018/19	2018/19	2018/19	2015/16	2017	2016/17	2018/19	2018/19
Lowest geographic unit available	Bairro	PSU	PSU	HH	HH	PSU	PSU	PSU
DOU urban classification:								
Urban center	0.49	0.20	0.27	0.10	0.63	0.24	0.31	0.28
Urban cluster	0.13	0.12	0.22	0.17	0.14	0.24	0.12	0.15
Rural	0.38	0.68	0.51	0.74	0.24	0.52	0.57	0.57
DB urban classification:								
Core	0.60	0.34	0.42	0.26	0.74	0.27	0.44	0.41
Suburb	0.05	0.08	0.07	0.46	0.09	0.16	0.06	0.08
Town	0.19	0.41	0.41	0.11	0.11	0.24	0.37	0.29
Other rural	0.35	0.58	0.51	0.28	0.17	0.56	0.50	0.52
Consumption (per day USD in 2017 PPP terms):								
Real per capita consumption expenditures	5.67	4.42	5.11	3.70	11.83	4.01	4.44	4.10
Nominal per capita consumption expenditures	5.90	4.67	5.19	0.99	11.88	4.03	4.49	4.22
Demographic:								
Household size	6.44	8.93	6.21	5.76	5.90	5.64	6.26	11.34
Age of household head	42.87	48.63	44.92	22.53	44.88	46.97	46.28	49.21
Household head is male	0.74	0.91	0.84	0.80	0.71	0.71	0.83	0.83
Marital status (of household head):								
Married	0.10	0.90	0.78	0.84	0.27	0.65	0.89	0.80
Never married	0.04	0.02	0.15	0.02	0.25	0.06	0.02	0.06
Living together	0.66	0.01	0.00	0.00	0.38	0.10	0.00	0.01
Divorced/Separated	0.12	0.01	0.02	0.04	0.03	0.09	0.01	0.02
Widowed	0.09	0.06	0.06	0.09	0.07	0.10	0.08	0.10
Education (of household head):								
No education	0.16	0.76	0.50	0.51	0.19	0.27	0.55	0.40
Primary incomplete	0.30	0.10	0.19	0.33	0.09	0.11	0.13	0.28
Primary complete	0.05	0.03	0.03	0.05	0.08	0.04	0.00	0.09
Secondary incomplete	0.40	0.08	0.18	0.04	0.42	0.41	0.17	0.07
Secondary complete	0.02	0.00	0.03	0.02	0.07	0.06	0.02	0.08
Post secondary but not university	0.00	0.00	0.03	0.03	0.00	0.07	0.00	0.00
University incomplete and complete	0.06	0.03	0.05	0.03	0.16	0.05	0.12	0.07
Can read and write	0.75	0.32	0.53	0.46	0.91	0.52	0.40	0.57
Employment (of household head):								
Not in labor force	0.09	0.07	0.08	0.08	0.21	0.02	0.06	0.09
Unemployed	0.06	0.00	0.00	0.00	0.04	0.02	0.01	0.00
Employed in Agriculture	0.34	0.66	0.52	0.72	0.14	0.42	0.41	0.47
Employed in Industry	0.09	0.08	0.09	0.05	0.14	0.14	0.15	0.10
Employed in Services	0.42	0.18	0.31	0.15	0.48	0.40	0.38	0.34
Access to basic services								
Improved water	0.68	0.81	0.78	0.57	0.88	0.59	0.79	0.78
Improved sanitation facility	0.46	0.30	0.33	0.04	0.32	0.20	0.29	0.37
Access to electricity	0.47	0.53	0.80	0.36	0.91	0.81	0.44	0.58

Source: International Urban Poverty Database.

Note: Real per capita consumption expenditures are deflated using a spatial deflator calculated based on the WorldPop 250m dataset and the DOU method.

Table A1: Summary statistics by country (cont.)

	LSO	MRT	MWI	NER	SEN	TCD	TZA	UGA
Number of households	4,294	9,341	12,439	6,024	6,843	7,493	9,463	15,572
Survey years	2017/18	2014	2016/17	2018/19	2018/19	2018/19	2017 – 19	2016/17
Lowest geographic unit available	HH	HH	HH	PSU	PSU	PSU	HH	Parish
DOU urban classification:								
Urban center	0.16	0.29	0.12	0.12	0.41	0.12	0.21	0.15
Urban cluster	0.20	0.17	0.17	0.12	0.18	0.16	0.23	0.40
Rural	0.64	0.54	0.72	0.76	0.41	0.73	0.56	0.45
DB urban classification:								
Core	0.33	0.43	0.15	0.40	0.53	0.50	0.36	0.27
Suburb	0.20	0.04	0.24	0.15	0.08	0.13	0.24	0.29
Town	0.20	0.28	0.06	0.30	0.23	0.14	0.17	0.09
Other rural	0.47	0.53	0.62	0.45	0.40	0.37	0.40	0.44
Consumption (per day USD in 2017 PPP terms):								
Real per capita consumption expenditures	4.64	5.71	2.39	2.65	5.56	3.73	3.39	3.52
Nominal per capita consumption expenditures	4.62	5.74	2.44	2.79	5.82	3.86	3.50	3.54
Demographic:								
Household size	5.27	7.47	5.19	7.58	12.69	6.88	6.18	5.89
Age of household head	51.07	49.92	43.12	46.01	53.44	43.96	47.38	43.43
Household head is male	0.63	0.74	0.75	0.87	0.76	0.81	0.76	0.74
Marital status (of household head):								
Married	0.58	0.83	0.78	0.93	0.86	0.86	0.75	0.79
Never married	0.06	0.01	0.01	0.00	0.02	0.01	0.03	0.03
Living together	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Divorced/Separated	0.05	0.06	0.11	0.02	0.02	0.05	0.07	0.07
Widowed	0.31	0.09	0.10	0.05	0.11	0.08	0.11	0.10
Education (of household head):								
No education	0.00	0.75	0.16	0.68	0.55	0.52	0.20	0.13
Primary incomplete	0.48	0.09	0.55	0.17	0.17	0.21	0.14	0.40
Primary complete	0.16	0.02	0.06	0.01	0.05	0.03	0.52	0.18
Secondary incomplete	0.19	0.08	0.12	0.10	0.15	0.18	0.10	0.19
Secondary complete	0.08	0.02	0.07	0.00	0.01	0.01	0.00	0.02
Post secondary but not university	0.03	0.00	0.02	0.01	0.01	0.01	0.02	0.05
University incomplete and complete	0.05	0.04	0.01	0.02	0.06	0.05	0.02	0.03
Can read and write	0.79	0.61	0.72	0.36	0.47	0.32	0.76	0.72
Employment (of household head):								
Not in labor force	0.26	0.20	0.48	0.02	0.17	0.02	0.29	0.08
Unemployed	0.04	0.17	0.06	0.00	0.00	0.00	0.09	0.01
Employed in Agriculture	0.24	0.19	0.06	0.66	0.31	0.69	0.36	0.54
Employed in Industry	0.20	0.07	0.07	0.07	0.12	0.06	0.05	0.09
Employed in Services	0.26	0.37	0.32	0.25	0.40	0.23	0.21	0.29
Access to basic services								
Improved water	0.86	0.61	0.87	0.62	0.85	0.66	0.71	0.77
Improved sanitation facility	0.45	0.51	0.52	0.15	0.63	0.13	0.28	0.22
Access to electricity	0.41	0.46	0.93	0.21	0.74	0.10	0.56	0.39

Source: International Urban Poverty Database.

Note: Real per capita consumption expenditures are deflated using a spatial deflator calculated based on the WorldPop 250m dataset and the DOU method.

Table A2: Profile of the poor across urban versus rural areas

		Poor by DOU				Poor by DB				
	All	Urban	Urban center	Urban cluster	Urban Rural	Urban	Core	Suburb	Town	Other Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Demographic:										
Household size	6.55	7.05	6.97	7.09	7.50	7.49	7.56	6.95	8.07	7.06
Age of household head	40.31	42.15	42.82	41.87	40.20	40.40	41.12	36.56	44.26	41.62
Household head is male	0.78	0.74	0.69	0.77	0.81	0.79	0.75	0.80	0.82	0.79
No education	0.37	0.29	0.25	0.30	0.49	0.44	0.37	0.40	0.55	0.40
Primary complete or incomplete	0.39	0.55	0.54	0.56	0.44	0.46	0.47	0.51	0.38	0.51
Secondary complete or incomplete	0.18	0.15	0.19	0.13	0.07	0.09	0.14	0.07	0.07	0.08
Tertiary complete or incomplete	0.06	0.02	0.02	0.01	0.00	0.01	0.02	0.01	0.00	0.00
Employment (of household head):										
Not in labor force	0.12	0.16	0.19	0.14	0.14	0.14	0.14	0.14	0.13	0.17
Unemployed	0.03	0.05	0.09	0.03	0.02	0.03	0.05	0.02	0.02	0.03
Employed in Agriculture	0.52	0.49	0.19	0.61	0.73	0.64	0.49	0.70	0.73	0.68
Employed in Industry	0.08	0.08	0.12	0.06	0.04	0.05	0.08	0.04	0.04	0.04
Employed in Services	0.26	0.23	0.40	0.16	0.07	0.14	0.24	0.10	0.07	0.08
Access to basic services										
Improved water	0.69	0.77	0.86	0.73	0.59	0.65	0.74	0.61	0.59	0.63
Improved sanitation facility	0.24	0.25	0.32	0.21	0.16	0.18	0.23	0.14	0.17	0.20
Access to electricity	0.48	0.37	0.56	0.29	0.20	0.26	0.35	0.22	0.23	0.20

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line.

Table A3: Estimation results of regressions on log expenditures with control variables: DOU

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Urban center	0.809***	0.504***	0.379***	0.367***	0.659***	0.405***	0.296***	0.296***
	(0.009)	(0.009)	(0.010)	(0.010)	(0.012)	(0.011)	(0.011)	(0.011)
Urban cluster	0.203***	0.105***	0.060***		0.146***	0.068***	0.028***	
	(0.009)	(0.008)	(0.008)		(0.010)	(0.009)	(0.008)	
Spatial deflator					0.690***	0.475***	0.412***	0.588***
					(0.038)	(0.032)	(0.031)	(0.052)
Demographic:								
Household size		−0.082***	−0.080***	−0.077***		−0.081***	−0.080***	−0.076***
		(0.002)	(0.002)	(0.004)		(0.002)	(0.002)	(0.004)
Age of head of hh		0.006***	0.007***	0.007***		0.006***	0.007***	0.007***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Sex of head of hh		−0.002	0.018*	−0.017		0.004	0.023**	−0.011
		(0.009)	(0.009)	(0.014)		(0.010)	(0.009)	(0.014)
Marital status (of head of hh):								
Never married		0.348***	0.334***	0.339***		0.346***	0.332***	0.336***
		(0.014)	(0.014)	(0.018)		(0.014)	(0.014)	(0.018)
Living together		−0.037**	−0.050***	−0.065***		−0.048***	−0.059***	−0.073***
		(0.018)	(0.018)	(0.024)		(0.018)	(0.018)	(0.024)
Divorced/Separated		0.050***	0.039**	−0.013		0.053***	0.042***	−0.012
		(0.016)	(0.015)	(0.024)		(0.016)	(0.015)	(0.023)
Widowed		0.063***	0.065***	0.036**		0.064***	0.066***	0.035*
		(0.013)	(0.013)	(0.018)		(0.013)	(0.013)	(0.018)
Education (of head of hh):								
Primary incomplete		0.098***	0.084***	0.102***		0.093***	0.080***	0.095***
		(0.009)	(0.009)	(0.014)		(0.009)	(0.009)	(0.014)
Primary complete		0.272***	0.233***	0.306***		0.261***	0.225***	0.288***
		(0.012)	(0.012)	(0.019)		(0.012)	(0.012)	(0.019)
Secondary incomplete		0.454***	0.387***	0.470***		0.443***	0.380***	0.453***
		(0.010)	(0.010)	(0.014)		(0.010)	(0.010)	(0.014)
Secondary complete		0.594***	0.492***	0.603***		0.583***	0.485***	0.580***
		(0.017)	(0.017)	(0.020)		(0.017)	(0.017)	(0.020)
Post secondary but not university		0.795***	0.658***	0.805***		0.787***	0.656***	0.790***
		(0.018)	(0.018)	(0.023)		(0.018)	(0.018)	(0.023)
University incomplete and complete		0.973***	0.849***	0.960***		0.960***	0.841***	0.935***
		(0.017)	(0.018)	(0.019)		(0.017)	(0.018)	(0.020)
Employment (of head of hh):								
Unemployed			0.052***				0.055***	
			(0.020)				(0.020)	
Not in labor force			0.100***				0.099***	
			(0.011)				(0.011)	
Employed in Industry			0.243***				0.237***	
			(0.012)				(0.012)	
Employed in Services			0.311***				0.302***	
			(0.009)				(0.009)	
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Adjusted R2	0.548	0.663	0.673	0.626	0.553	0.665	0.674	0.630
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134548	134548	134548	75505	134548	134548	134548	75505

Source: International Urban Poverty Database.

Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors in parentheses. WorldPop 250m is used for the DOU method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Urban center" or "Urban cluster") are included in specifications (4) and (8). The baseline category is "Rural" in all specifications, except (4) and (8), where it is "Urban cluster". Baseline categories for the control variables are the following: "Married" for marital status of household head, "No education" for education of household head, and "Employed in Agriculture" for employment of household head. Robust standard errors are in parentheses. Observations are weighted using population weights.

Table A4: Estimation results of regressions on log expenditures with control variables: DB

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Core	0.550***	0.303***	0.204***	0.270***	0.440***	0.239***	0.155***	0.176***
	(0.010)	(0.009)	(0.010)	(0.009)	(0.011)	(0.010)	(0.010)	(0.010)
Suburb	0.074***	0.004	−0.013		0.068***	0.002	−0.015	
	(0.011)	(0.010)	(0.010)		(0.011)	(0.010)	(0.010)	
Town	−0.022**	−0.049***	−0.038***		−0.039***	−0.059***	−0.046***	
	(0.010)	(0.010)	(0.010)		(0.010)	(0.010)	(0.010)	
Spatial deflator					0.802***	0.502***	0.413***	0.826***
					(0.029)	(0.026)	(0.025)	(0.034)
Demographic:								
Household size		−0.084***	−0.082***	−0.091***		−0.083***	−0.081***	−0.091***
		(0.002)	(0.002)	(0.003)		(0.002)	(0.002)	(0.003)
Age of head of hh		0.007***	0.007***	0.008***		0.007***	0.007***	0.007***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Sex of head of hh		−0.014	0.012	−0.034***		−0.004	0.019**	−0.018
		(0.010)	(0.009)	(0.012)		(0.010)	(0.009)	(0.012)
Marital status (of head of hh):								
Never married		0.358***	0.338***	0.371***		0.352***	0.334***	0.361***
		(0.014)	(0.014)	(0.018)		(0.014)	(0.014)	(0.017)
Living together		−0.031*	−0.046**	−0.028		−0.044**	−0.056***	−0.048*
		(0.019)	(0.018)	(0.025)		(0.019)	(0.018)	(0.025)
Divorced/Separated		0.052***	0.040***	0.032		0.058***	0.045***	0.038*
		(0.016)	(0.015)	(0.021)		(0.016)	(0.015)	(0.020)
Widowed		0.068***	0.069***	0.077***		0.070***	0.070***	0.077***
		(0.013)	(0.013)	(0.016)		(0.013)	(0.013)	(0.016)
Education (of head of hh):								
Primary incomplete		0.111***	0.093***	0.128***		0.104***	0.088***	0.111***
		(0.009)	(0.009)	(0.012)		(0.009)	(0.009)	(0.011)
Primary complete		0.299***	0.249***	0.329***		0.286***	0.241***	0.297***
		(0.012)	(0.012)	(0.017)		(0.012)	(0.012)	(0.016)
Secondary incomplete		0.503***	0.418***	0.525***		0.490***	0.410***	0.492***
		(0.010)	(0.010)	(0.013)		(0.010)	(0.010)	(0.013)
Secondary complete		0.671***	0.539***	0.678***		0.650***	0.526***	0.629***
		(0.017)	(0.017)	(0.018)		(0.017)	(0.017)	(0.018)
Post secondary but not university		0.850***	0.684***	0.868***		0.834***	0.677***	0.831***
		(0.019)	(0.019)	(0.022)		(0.019)	(0.019)	(0.022)
University incomplete and complete		1.062***	0.903***	1.058***		1.036***	0.887***	1.003***
		(0.018)	(0.018)	(0.019)		(0.018)	(0.018)	(0.018)
Employment (of head of hh):								
Unemployed			0.096***				0.095***	
			(0.019)				(0.019)	
Not in labor force			0.128***				0.123***	
			(0.012)				(0.011)	
Employed in Industry			0.283***				0.272***	
			(0.012)				(0.012)	
Employed in Services			0.349***				0.336***	
			(0.009)				(0.009)	
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Adjusted R2	0.523	0.655	0.668	0.699	0.531	0.658	0.670	0.705
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134630	134630	134630	88450	134630	134630	134630	88450

Source: International Urban Poverty Database.

Note: *** p < 0.01, ** p < 0.05, *** p < 0.1 . Robust standard errors are in parentheses. WorldPop 250m is used for the DB methods. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Core" or "Suburb") are included in specifications (4) and (8). The baseline category is "Other rural" in all specifications, except (4) and (8), where it is "Suburb". Baseline categories are the following: "Married" for the marital status of the household head, "No education" for the education of the household head, and "Employed in Agriculture" for the employment of the household head. Observations are weighted using population weights.

Table A5: Access to basic amenities and location

	Water			Sanitation			Electricity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: DOU									
Urban center	0.269***	0.248***	0.190***	0.227***	0.176***	0.136***	0.479***	0.379***	0.258***
	(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.007)	(0.005)	(0.005)	(0.006)
Urban cluster	0.131***	0.127***	0.104***	0.094***	0.084***	0.068***	0.167***	0.146***	0.098***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Log of real exp.		0.036***	0.019***		0.089***	0.088***		0.177***	0.151***
		(0.003)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Panel B: DB									
Core	0.202***	0.179***	0.129***	0.181***	0.139***	0.104***	0.331***	0.242***	0.147***
	(0.006)	(0.006)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Suburb	0.149***	0.130***	0.094***	0.170***	0.137***	0.113***	0.234***	0.164***	0.094***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)
Town	0.073***	0.065***	0.056***	0.064***	0.050***	0.042***	0.087***	0.058***	0.039***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Log of real exp.		0.056***	0.023***		0.099***	0.088***		0.212***	0.160***
		(0.003)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	No	Yes	No	No	Yes	No	No	Yes
Education	No	No	Yes	No	No	Yes	No	No	Yes
Employment	No	No	Yes	No	No	Yes	No	No	Yes
Panel A Adj.R^2	0.090	0.092	0.103	0.173	0.192	0.225	0.255	0.309	0.354
Panel B Adj.R^2	0.066	0.073	0.093	0.160	0.185	0.222	0.186	0.269	0.339
Nr. of countries	16	16	16	16	16	16	16	16	16
Nr. of hh	134624	134624	134624	134624	134624	134624	131294	131294	131294

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. WorldPop 250m is used for the DOU and DB method. The dependent variable is a dummy variable taking the value 1 if a household has access to a respective amenity. The baseline category is "Urban center" in all specifications in Panel A, and "Cores" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

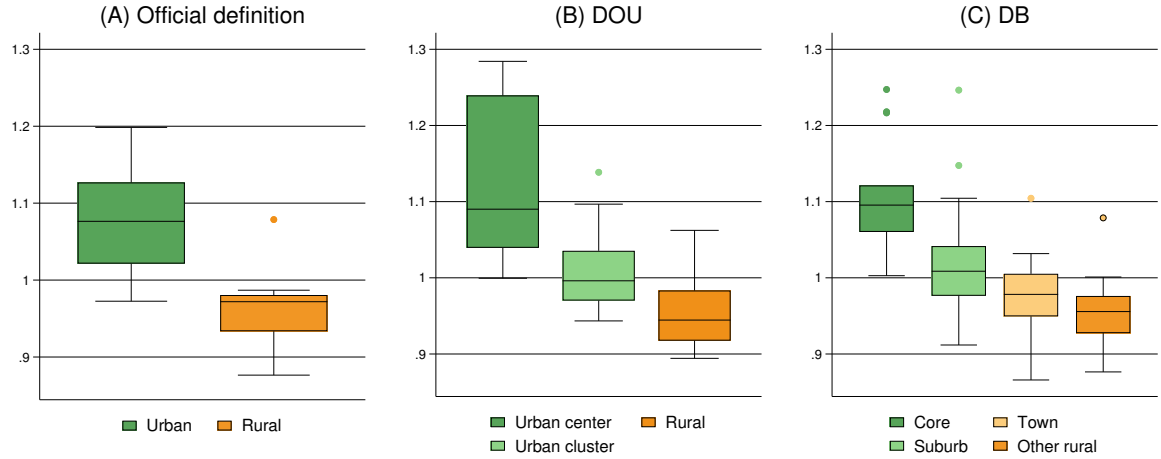
Table A6: Employment shares across locations

	Agriculture				Services			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: DOU								
Urban center	-0.664***	-0.650***	-0.551***	-0.200***	0.556***	0.544***	0.446***	0.174***
	(0.004)	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Urban cluster	-0.223***	-0.219***	-0.184***	-0.061***	0.188***	0.184***	0.150***	0.054***
	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)	(0.005)	(0.003)
Panel B: DB								
Core	-0.427***	-0.416***	-0.322***	-0.111***	0.358***	0.348***	0.260***	0.093***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Suburb	-0.326***	-0.316***	-0.239***	-0.079***	0.262***	0.254***	0.182***	0.063***
	(0.008)	(0.008)	(0.008)	(0.005)	(0.008)	(0.008)	(0.007)	(0.005)
Town	-0.079***	-0.076***	-0.048***	-0.018***	0.064***	0.061***	0.036***	0.014***
	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)	(0.004)	(0.003)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Education	No	No	Yes	Yes	No	No	Yes	Yes
Employment	No	No	No	Yes	No	No	No	Yes
Panel A Adj.R^2	0.398	0.410	0.457	0.801	0.319	0.329	0.382	0.760
Panel B Adj.R^2	0.232	0.254	0.352	0.789	0.183	0.201	0.303	0.750
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	119276	119276	119276	119276	119276	119276	119276	119276

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. WorldPop 250m is used for the DOU and DB method. The dependent variable is a share of household workers employed in a respective sector. The baseline category is "Urban center" in all specifications in Panel A, and "Cores" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

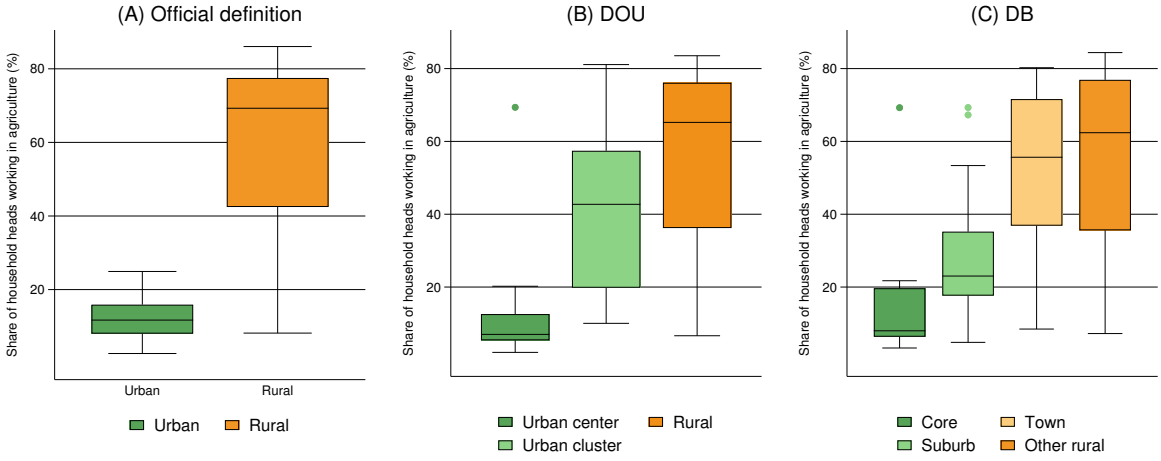
B Results based on GHSPOP

Figure B1: Cost of living index across urban versus rural areas in 16 SSA countries



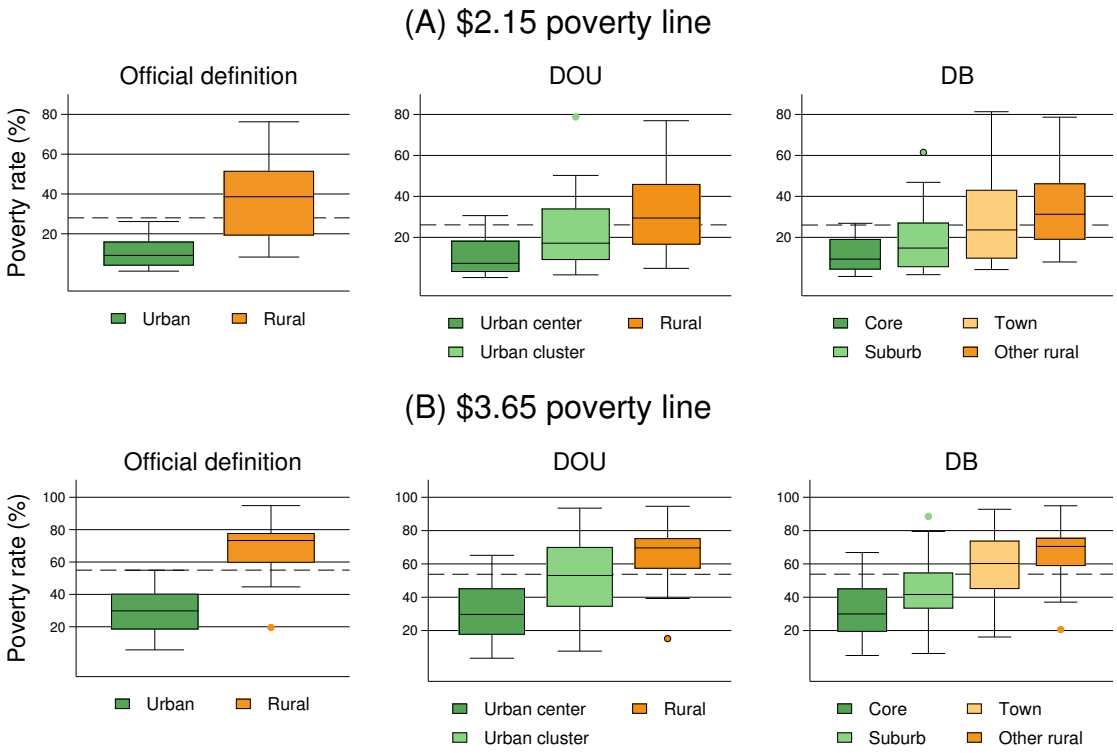
Source: International Urban Poverty Database.
Note: DOU: Degree of urbanization. DB: Dartboard. The cost-of-living index is prepared as a spatial deflator for each country in this study. It is normalized to 1 for each country. GHSPOP 1km is used for both the DOU and DB methods.

Figure B2: Share of household heads working in agriculture across urban versus rural areas



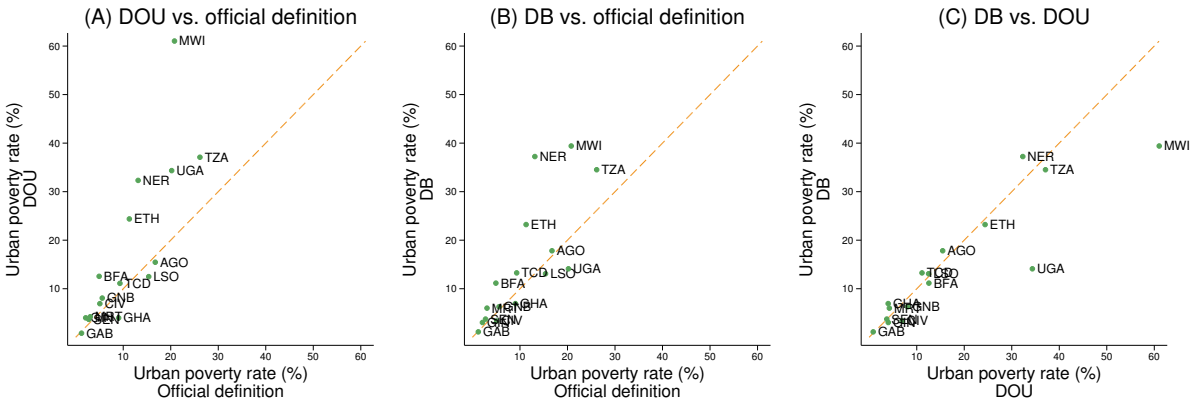
Source: International Urban Poverty Database.
Note: Each boxplot shows the share of household heads working in agriculture over different geographic areas in 16 SSA countries. GHSPOP 1km is used for the DOU and DB methods.

Figure B3: Poverty rates across urban versus rural areas



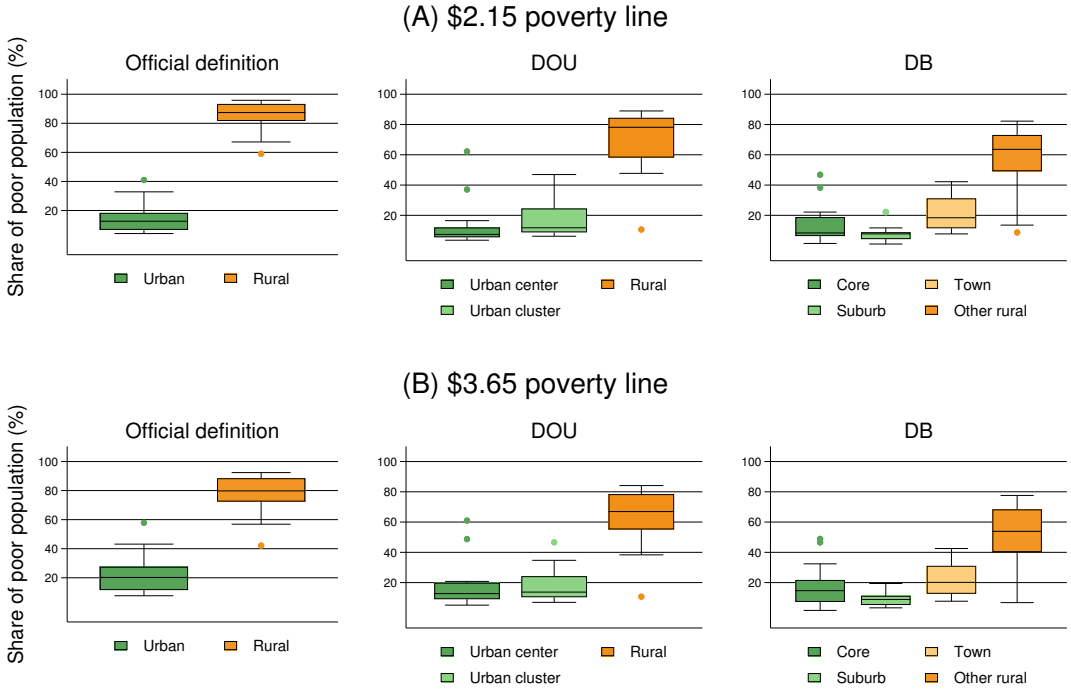
Source: International Urban Poverty Database.
Note: Each boxplot shows the distributions of poverty rates over different geographic areas in 16 SSA countries. GHSPOP 1km is used for the DOU and DB methods. The dashed lines represent the average national poverty rate in the sample.

Figure B4: Comparison of urban poverty rates between official and DOU/DB urban definitions



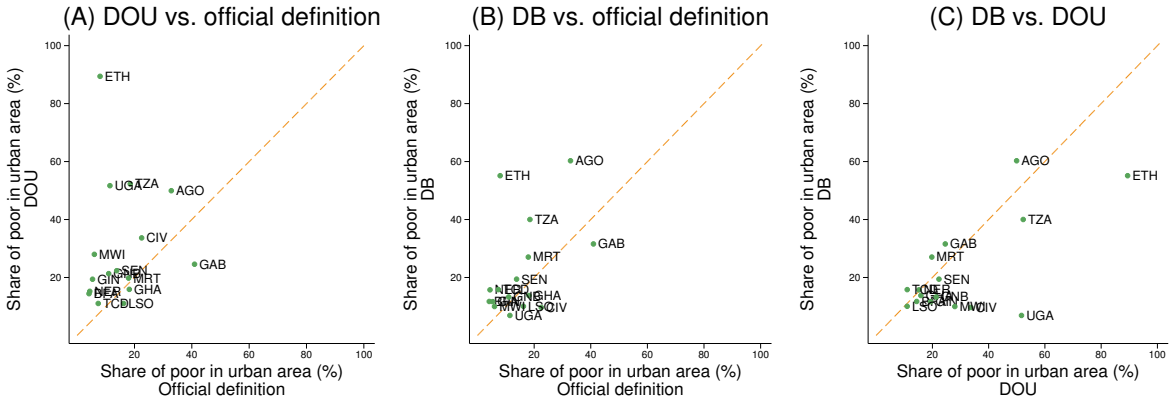
Source: International Urban Poverty Database.
Note: GHSPOP 1km is used for the DOU and DB methods. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure B5: Distribution of poor population across urban versus rural areas



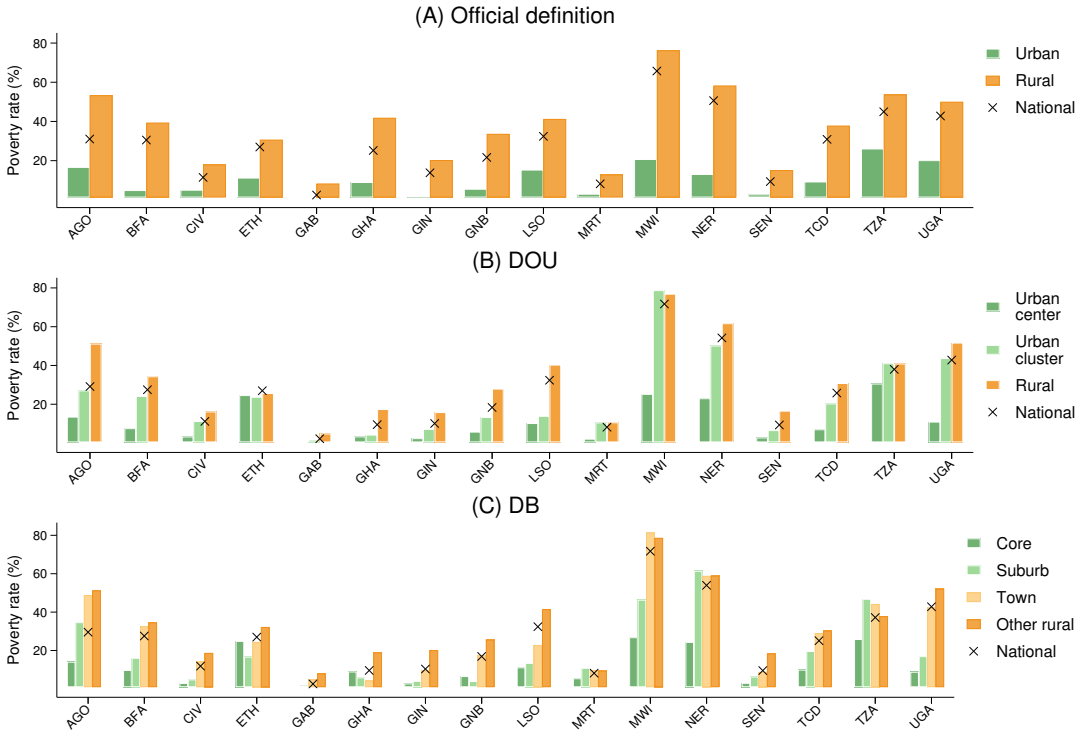
Source: International Urban Poverty Database.
Note: GHSPOP 1km is used for the DOU and DB methods. Each boxplot shows the distribution of the share of the poor population over different geographic areas in 16 SSA countries.

Figure B6: Comparison of urban shares of poor populations between official and DOU/DB urban definitions



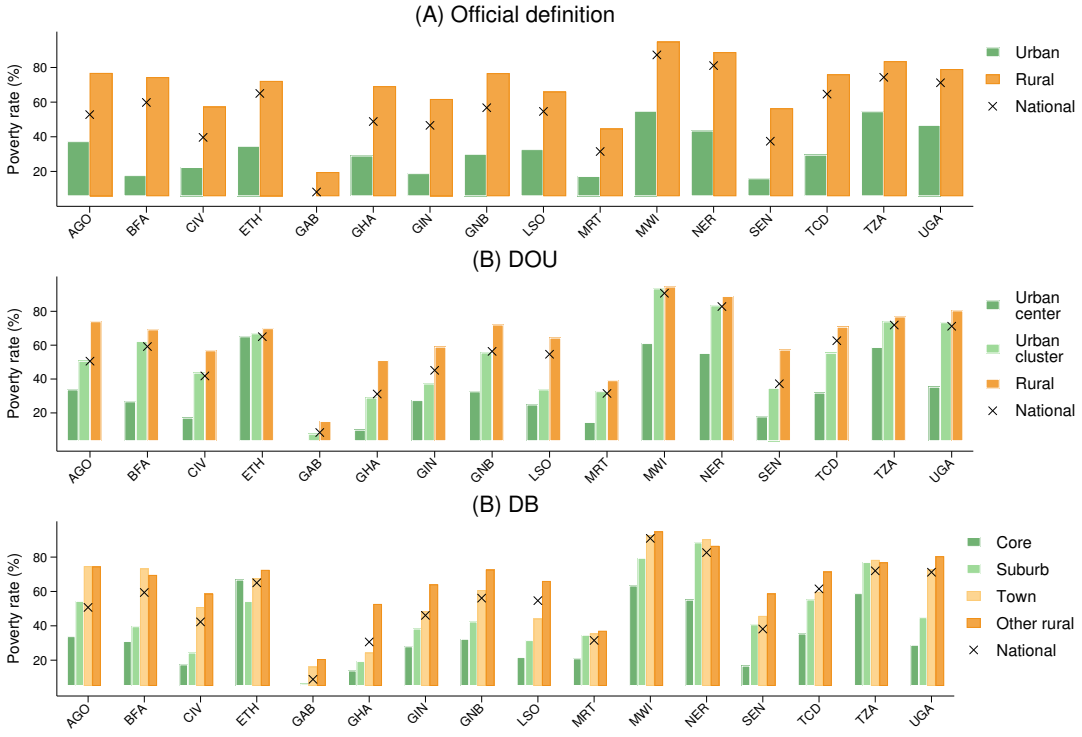
Source: International Urban Poverty Database.
Note: GHSPOP 1km is used for the DOU and DB methods. Dashed lines are 45-degree lines. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure B7: Poverty rates across urban versus rural areas by country, $2.15 poverty line



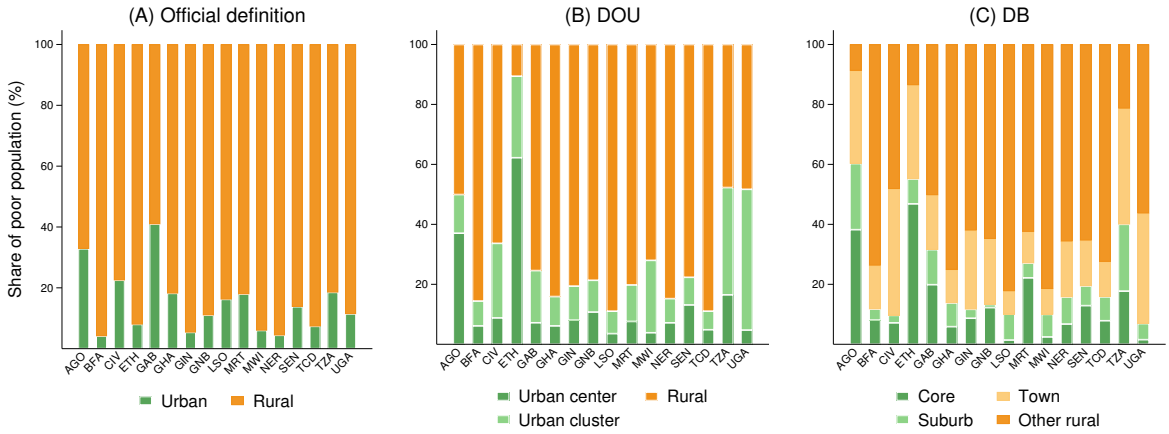
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, GHSPOP 1km is used.

Figure B8: Poverty rates across urban versus rural areas by country, $3.65 poverty line



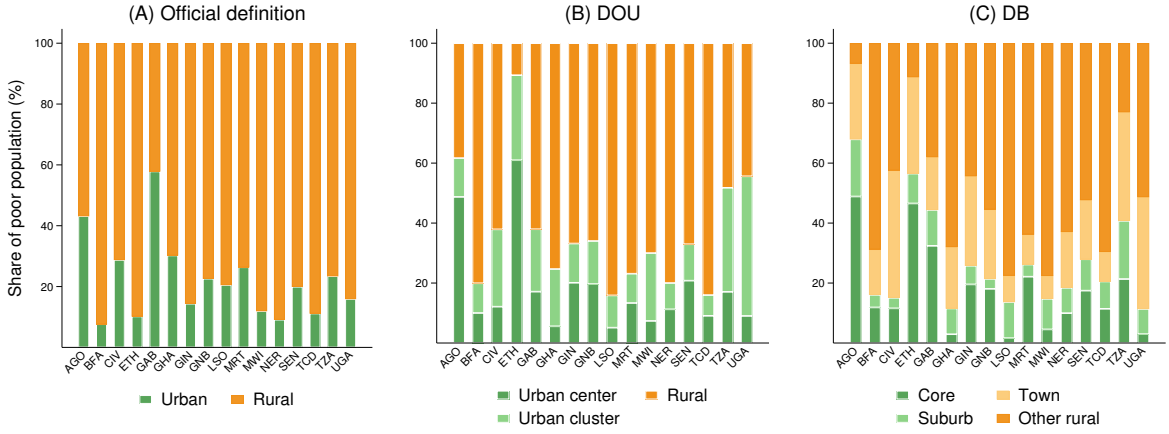
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, GHSPOP 1km is used.

Figure B9: Distributions of poor populations across urban versus rural areas by country, $2.15 poverty line



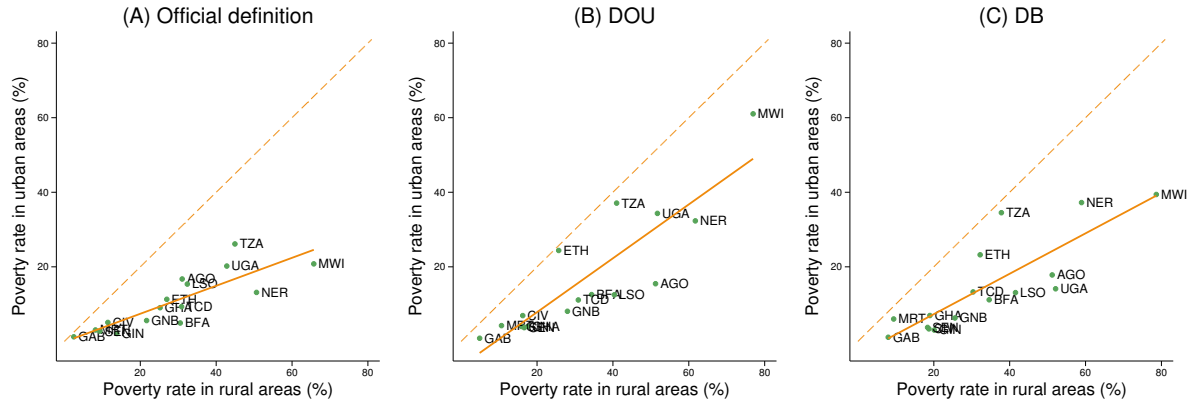
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, GHSPOP 1km is used.

Figure B10: Distributions of poor populations across urban versus rural areas by country, $3.65 poverty line



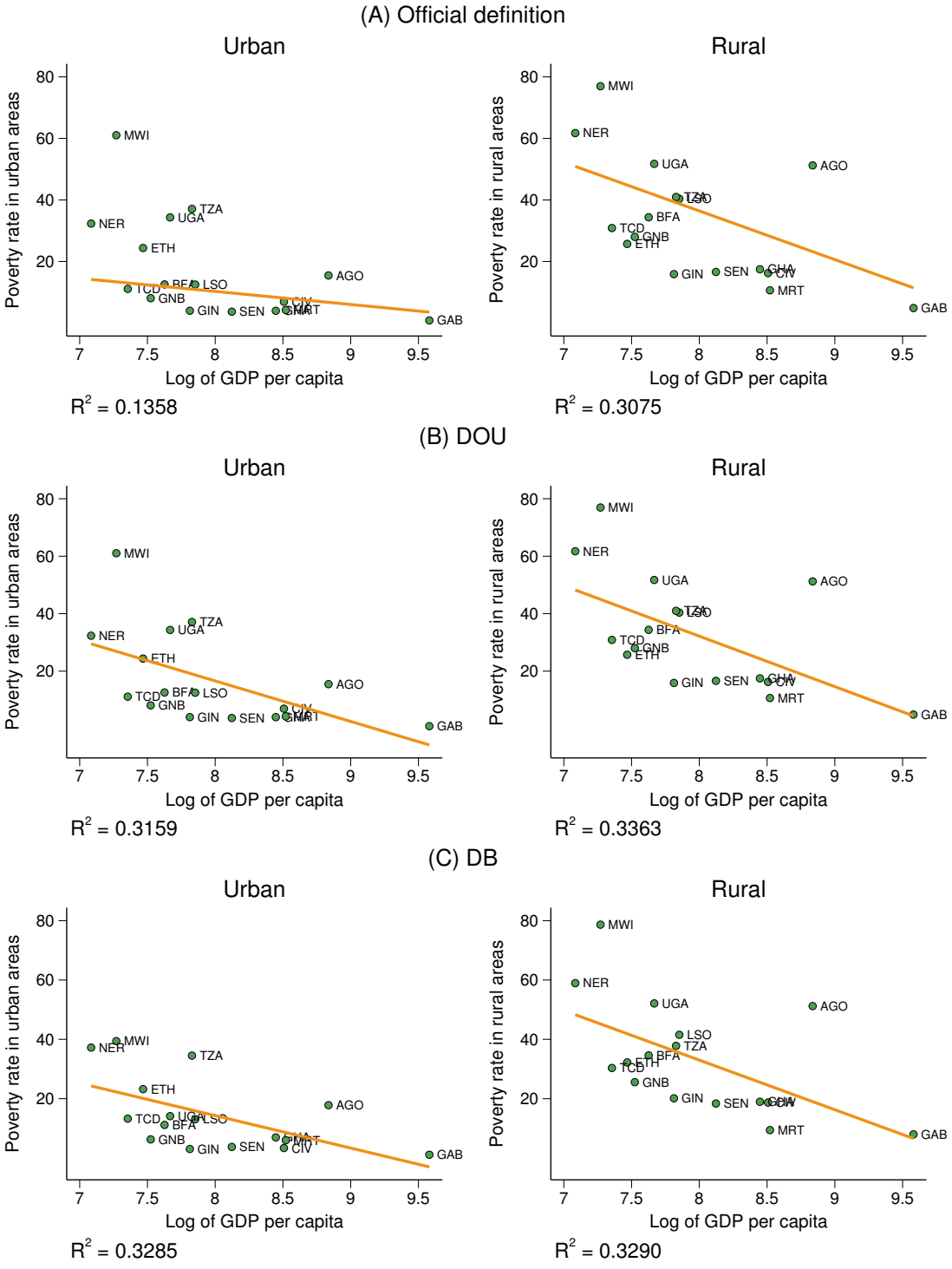
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, GHSPOP 1km is used.

Figure B11: Comparison of urban and rural poverty rates



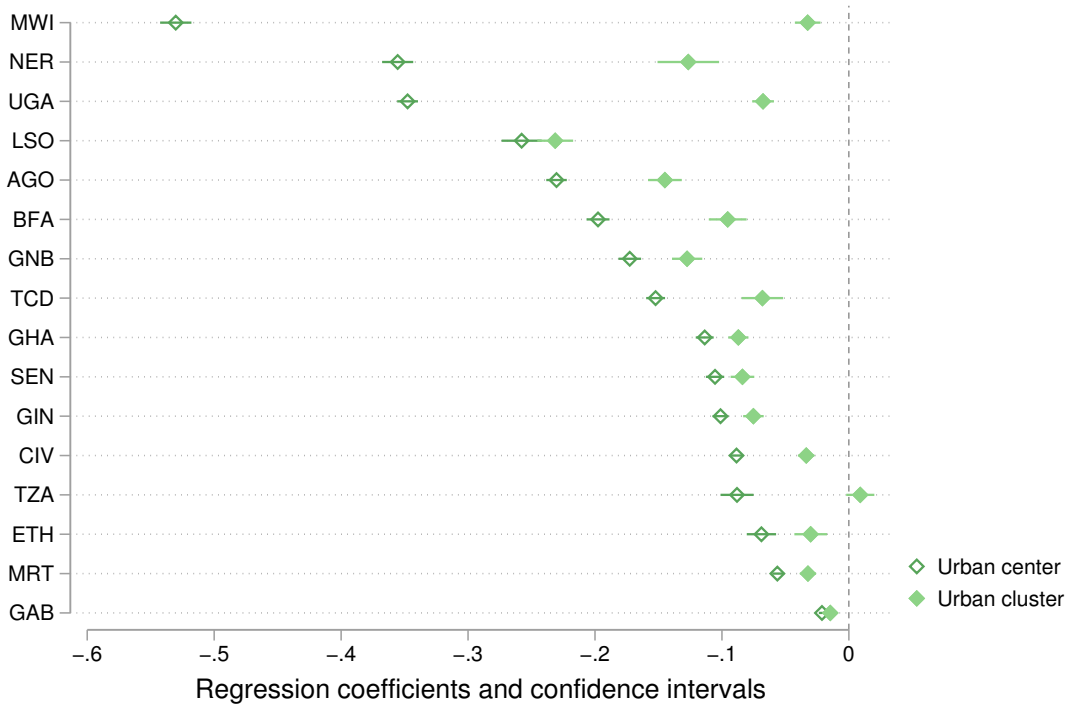
Source: International Urban Poverty Database.
Note: GHSPOP 1km is used for the DOU and DB methods. Dashed lines are 45-degree lines. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure B12: Urban/rural poverty rates and GDP



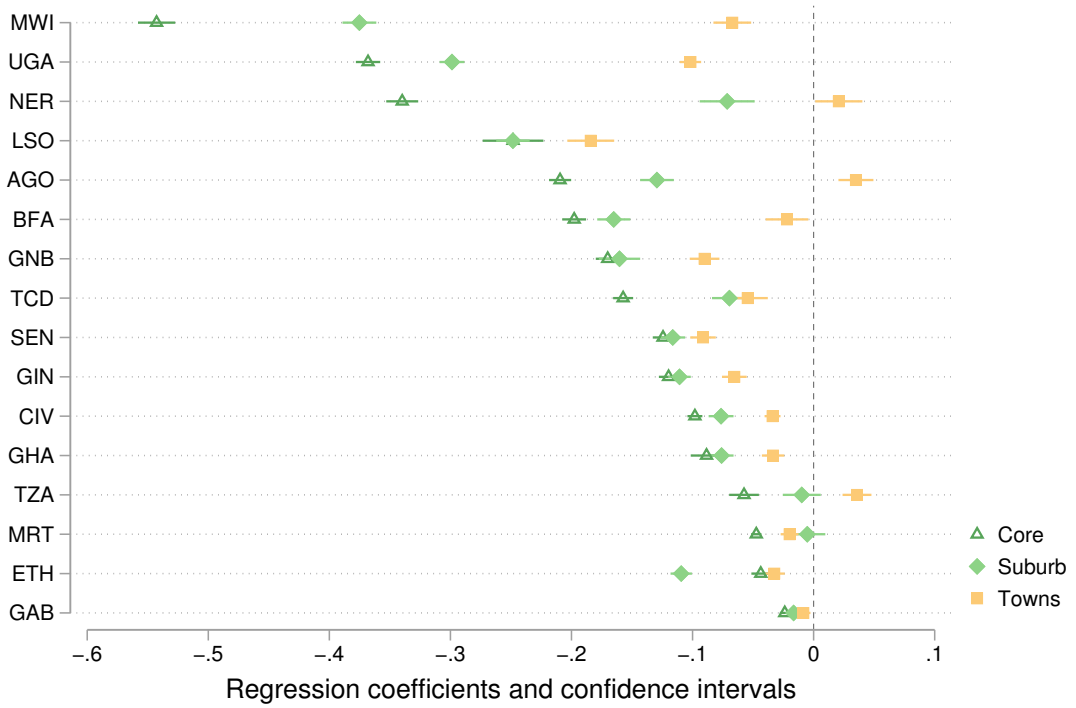
Source: International Urban Poverty Database.
Note: GDP per capita is measured in PPP (constant 2017 international $). For the DOU and DB methods, GHSPOP 1km is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method. Poverty is measured using the $2.15 poverty line.

Figure B13: Heterogeneity in poverty gradient across countries, DOU



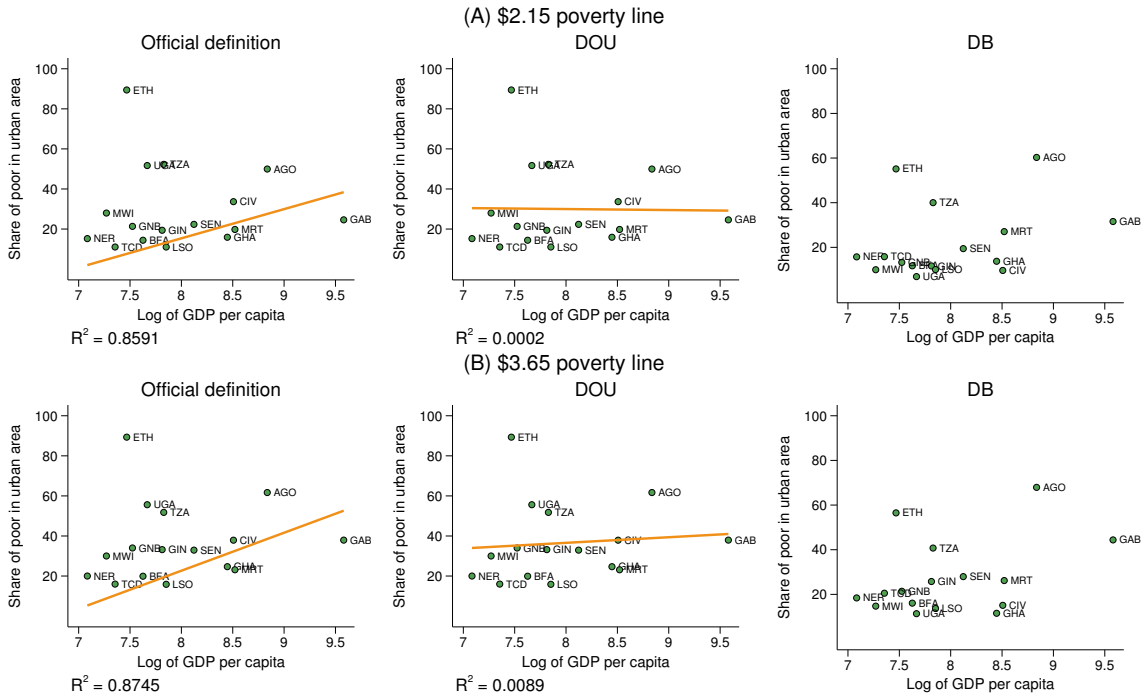
Source: International Urban Poverty Database.
Each dot represents the regression coefficients $DOU_{j(i)}$ of regression 5 for each country c, excluding control variables. Confidence intervals are represented with a line. The dependent variable POV_i is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. $DOU_{j(i)}$ is a vector of dummy variables: "Urban cluster" ("Urban area") takes the value 1 if household i lives in an "Urban cluster" ("Urban area") as defined by the DOU method. The baseline category is "Rural". GHSPOP 1km is used.

Figure B14: Heterogeneity in poverty gradient across countries, DB



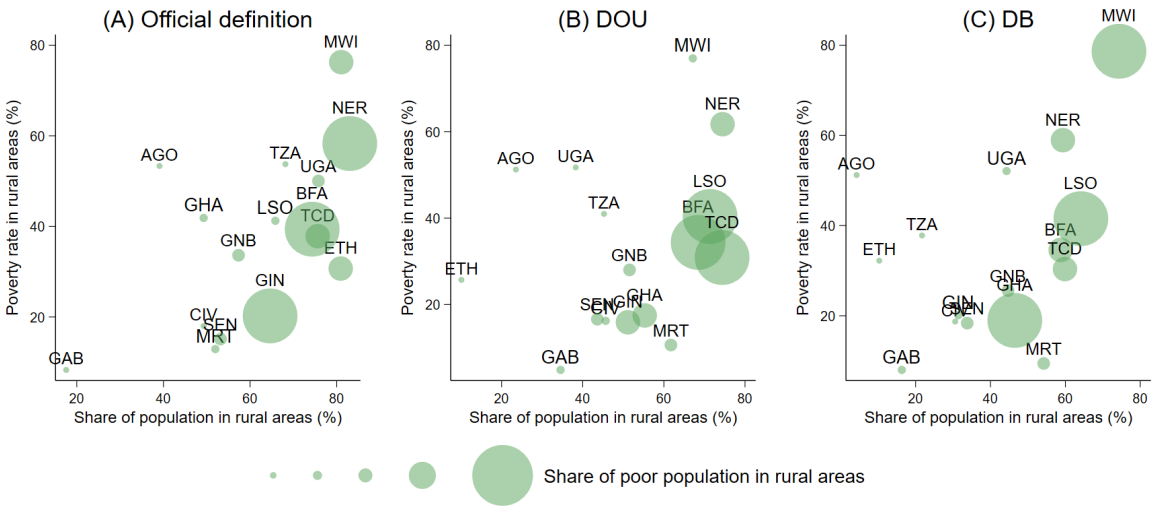
Source: International Urban Poverty Database.
Each dot represents the regression coefficients $DB_{j(i)}$ of regression 6 for each country c, excluding control variables. Confidence intervals are represented with a line. The dependent variable POV_i is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. $DOU_{j(i)}$ is a vector of dummy variables: "Core", "Suburb", "Town" respectively take the value 1 if household i lives in an "Core", "Suburb" or "Town" as defined by the DB method. The baseline category is "Other rural". GHSPOP 1km is used.

Figure B15: Share of poor in urban areas and GDP



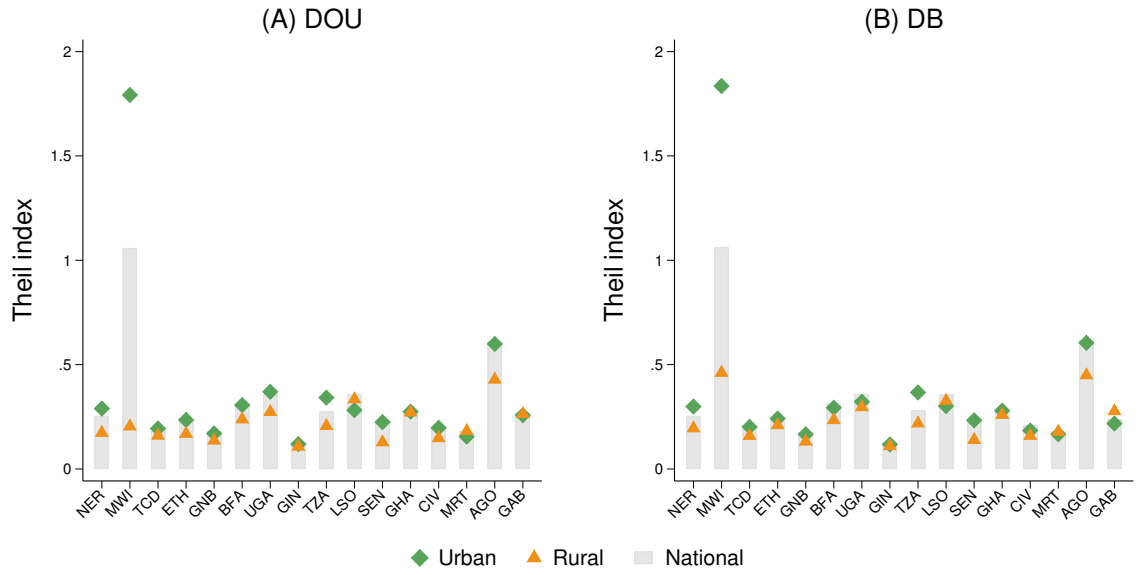
Source: International Urban Poverty Database.
Note: GDP per capita is measured in PPP (constant 2017 international $). For the DOU and DB methods, GHSPOP 1km is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure B16: Poverty rates, population shares, and poor population shares in rural areas



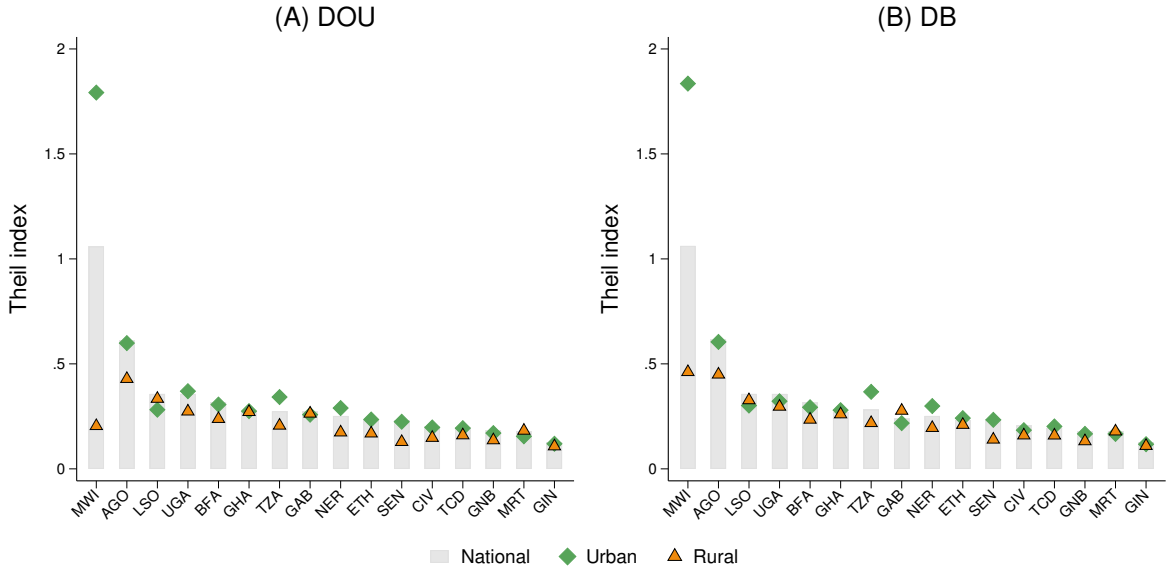
Source: International Urban Poverty Database.
Note: The size of each circle is proportional to the share of the poor population in rural areas for each country. GHSPOP 1km is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line.

Figure B17: Theil indexes at the national and across urban versus rural areas, sorted by GDP per capita



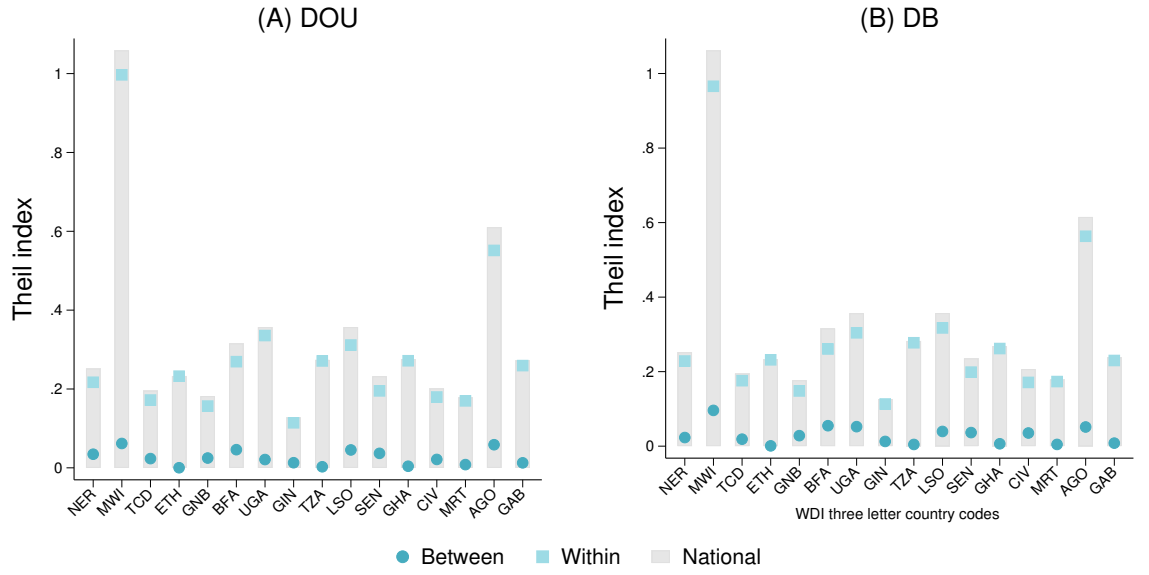
Source: International Urban Poverty Database.
Note: Countries are sorted in ascending order of log of GDP per capita, measured in PPP (constant 2017 international $). GHSPOP 1km is used for the DOU and DB methods. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. See Figure B18 for the same chart with countries reordered by the highest to the lowest Theil indexes.

Figure B18: Theil indexes at the national and across urban versus rural areas, sorted by Theil index



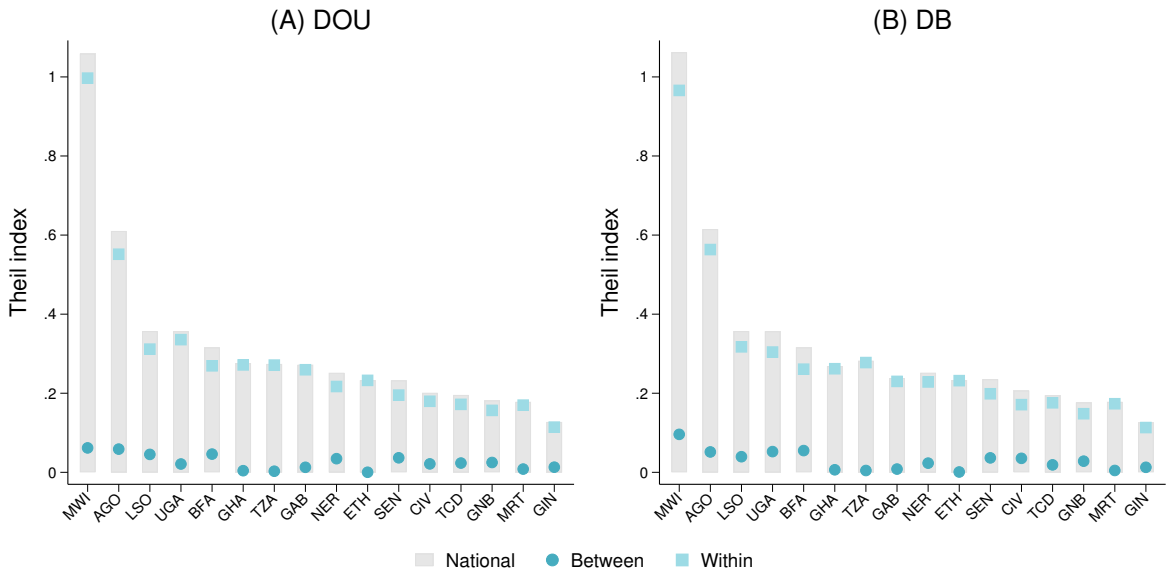
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, GHSPOP 1km is used. For the DOU and DB methods, GHSPOP 1km is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure B19: Decomposition of Theil indexes, sorted by GDP per capita



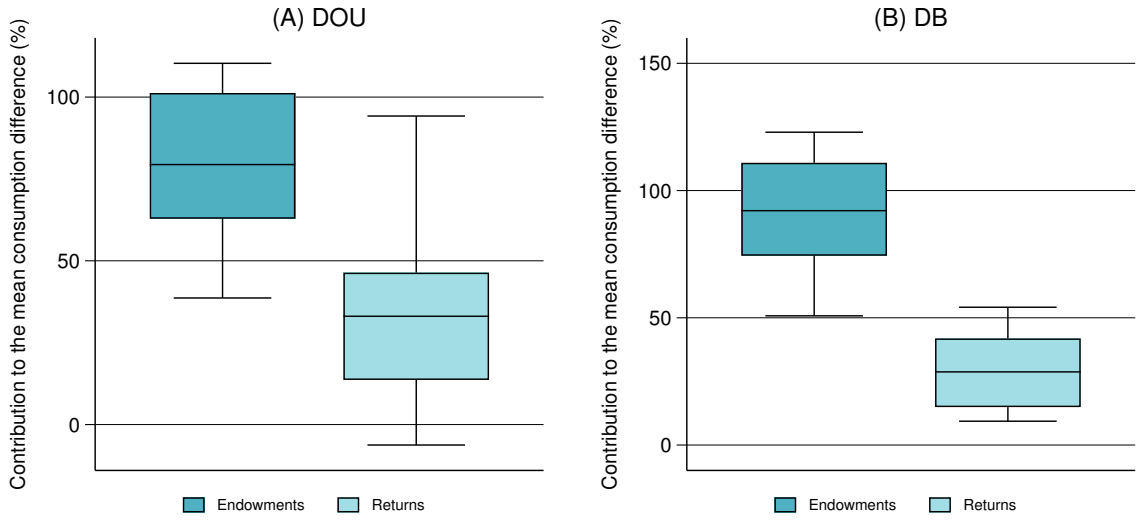
Source: International Urban Poverty Database.
Note: Countries are sorted in ascending order of log of GDP per capita, measured in PPP (constant 2017 international $). GHSPOP 1km is used for the DOU and DB methods. See Figure B20 for the same chart with countries reordered by the highest to the lowest Theil indexes.

Figure B20: Decomposition of Theil coefficients and GDP, sorted by Theil index



Source: International Urban Poverty Database.
Note: For the DOU and DB methods, GHSPOP 1km is used.

Figure B21: Decomposition of consumption difference between urban and rural areas



Source: International Urban Poverty Database.
Note: Each boxplot shows the distribution of percentage contribution of (1) endowments and (2) returns to the mean differences in the log per capita consumption expenditures between urban and rural areas in 16 SSA countries based on the Oaxaca-Blinder decomposition. The share of interactions is not shown for the sake of presentation. GHSPOP 1km is used for the DOU and DB methods.

Table B1: Summary Statistics of pooled household-level data

	N	Mean	Median	SD	Min	Max
Consumption (per day USD in 2017 PPP terms):						
Real per capita consumption expenditures	167,101	3.96	2.90	8.03	0.06	2304.38
Nominal per capita consumption expenditures	167,260	3.38	2.14	8.82	0.04	2521.88
Spatial deflator						
Spatial deflator	167,128	1.00	0.98	0.13	0.76	1.75
Demographic:						
Household size	167,357	6.55	6.00	3.80	1.00	62.00
Age of household head	167,253	40.31	40.00	18.46	0.00	119.00
Household head is male	167,303	0.78	1.00	0.41	0.00	1.00
Marital status (of household head):						
Married	167,293	0.75	1.00	0.43	0.00	1.00
Never married	167,293	0.04	0.00	0.18	0.00	1.00
Living together	167,293	0.07	0.00	0.25	0.00	1.00
Divorced/Separated	167,293	0.06	0.00	0.23	0.00	1.00
Widowed	167,293	0.09	0.00	0.29	0.00	1.00
Education (of household head):						
No education	151,321	0.37	0.00	0.48	0.00	1.00
Primary incomplete	151,321	0.25	0.00	0.44	0.00	1.00
Primary complete	151,321	0.13	0.00	0.34	0.00	1.00
Secondary incomplete	151,321	0.16	0.00	0.37	0.00	1.00
Secondary complete	151,321	0.02	0.00	0.15	0.00	1.00
Post secondary but not university	151,321	0.03	0.00	0.16	0.00	1.00
University incomplete and complete	151,321	0.04	0.00	0.19	0.00	1.00
Can read and write	164,312	0.56	1.00	0.50	0.00	1.00
Employment (of household head):						
Not in labor force	147,133	0.12	0.00	0.32	0.00	1.00
Unemployed	147,133	0.03	0.00	0.16	0.00	1.00
Employed in Agriculture	147,133	0.52	1.00	0.50	0.00	1.00
Employed in Industry	147,133	0.08	0.00	0.27	0.00	1.00
Employed in Services	147,133	0.26	0.00	0.44	0.00	1.00
Access to basic services						
Improved water	167,286	0.69	1.00	0.46	0.00	1.00
Improved sanitation facility	167,286	0.24	0.00	0.43	0.00	1.00
Access to electricity	156,228	0.48	0.00	0.50	0.00	1.00
DOU urban classification:						
Urban center	167,357	0.35	0.00	0.48	0.00	1.00
Urban cluster	167,357	0.19	0.00	0.40	0.00	1.00
Rural	167,357	0.45	0.00	0.50	0.00	1.00
DB urban classification:						
Core	167,357	0.31	0.00	0.46	0.00	1.00
Suburb	167,357	0.09	0.00	0.29	0.00	1.00
Town	167,357	0.21	0.00	0.41	0.00	1.00
Other rural	167,357	0.60	1.00	0.49	0.00	1.00

Source: International Urban Poverty Database.
Note: The statistics above are based on the household-level data pooled for 16 SSA countries. Real per capita consumption expenditures are deflated using a spatial deflator calculated using the GHSPOP 1km dataset and the DOU method.

Table B2: Household characteristics across urban versus rural areas

		Official definition		**DOU**			**DB**			
	All	Urban	Rural	Urban center	Urban cluster	Rural	Core	Suburb	Town	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Demographic:										
Household size	6.55	6.18	6.71	6.24	6.38	6.86	6.37	6.31	6.56	6.73
Age of household head	40.31	42.51	39.30	33.79	39.69	45.66	34.73	41.24	39.38	44.95
Household head is male	0.78	0.73	0.81	0.78	0.78	0.79	0.78	0.77	0.79	0.79
Education (of household head):										
No education	0.37	0.20	0.45	0.35	0.32	0.41	0.35	0.28	0.39	0.40
Primary complete or incomplete	0.39	0.33	0.42	0.34	0.48	0.39	0.35	0.40	0.44	0.38
Secondary complete or incomplete	0.18	0.33	0.11	0.20	0.15	0.18	0.20	0.23	0.13	0.18
Tertiary complete or incomplete	0.06	0.15	0.02	0.11	0.05	0.03	0.10	0.09	0.04	0.04
Employment (of household head):										
Not in labor force	0.12	0.13	0.11	0.10	0.13	0.12	0.11	0.14	0.12	0.11
Unemployed	0.03	0.04	0.02	0.02	0.02	0.03	0.03	0.04	0.02	0.03
Employed in Agriculture	0.52	0.14	0.71	0.42	0.56	0.60	0.41	0.36	0.63	0.60
Employed in Industry	0.08	0.14	0.05	0.10	0.07	0.06	0.09	0.11	0.06	0.07
Employed in Services	0.26	0.55	0.12	0.36	0.22	0.19	0.36	0.35	0.17	0.20
Access to basic services										
Improved water	0.69	0.84	0.62	0.74	0.72	0.64	0.75	0.77	0.67	0.64
Improved sanitation facility	0.24	0.40	0.17	0.27	0.24	0.23	0.28	0.34	0.20	0.22
Access to electricity	0.48	0.82	0.32	0.60	0.45	0.39	0.60	0.56	0.42	0.39

Source: International Urban Poverty Database.
Note: GHSPOP 1km is used for the DOU and DB methods

Table B3: Estimation results of regressions on log expenditures with DOU classifications

	Log of per capita nominal consumption expenditures							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All	All	All	Urban	All	All	All	Urban
Urban center	0.634***	0.380***	0.274***	0.186***	0.432***	0.259***	0.186***	0.121***
	(0.010)	(0.009)	(0.009)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)
Urban cluster	0.265***	0.169***	0.129***		0.169***	0.110***	0.086***	
	(0.009)	(0.009)	(0.008)		(0.009)	(0.009)	(0.009)	
Spatial deflator					1.263***	0.837***	0.677***	0.853***
					(0.036)	(0.029)	(0.028)	(0.035)
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Education	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Employment	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*	*No*
Adjusted R2	0.521	0.659	0.673	0.738	0.540	0.667	0.678	0.745
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134630	134630	134630	79356	134630	134630	134630	79356

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors in parentheses. GHSPOP 1km is used for the DOU method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Urban center" or "Urban cluster") are included in specifications (4) and (8). The baseline category is "Rural" in all specifications, except (4) and (8), where it is "Urban cluster". Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table B4: Estimation results of regressions on log expenditures with DB classifications

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Core	0.534***	0.318***	0.227***	0.135***	0.360***	0.218***	0.155***	0.129***
	(0.010)	(0.009)	(0.009)	(0.013)	(0.011)	(0.010)	(0.010)	(0.013)
Suburb	0.417***	0.232***	0.167***		0.239***	0.126***	0.089***	
	(0.014)	(0.012)	(0.012)		(0.014)	(0.012)	(0.012)	
Town	0.164***	0.107***	0.095***		0.103***	0.071***	0.067***	
	(0.009)	(0.008)	(0.008)		(0.009)	(0.008)	(0.008)	
Spatial deflator					1.323***	0.847***	0.678***	1.044***
					(0.031)	(0.027)	(0.027)	(0.035)
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Education	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Employment	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*	*No*
Adjusted R2	0.509	0.655	0.671	0.747	0.530	0.663	0.676	0.758
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134202	134202	134202	59863	134202	134202	134202	59863

Source: International Urban Poverty Database.
Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. GHSPOP 1km is used for the DB method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Core" or "Suburb") are included in specifications (4) and (8). The baseline category is "Other rural" in all specifications, except (4) and (8), where it is "Suburb". Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table B5: Estimation results of regressions on household poverty status

	Poverty status (1 = poor, 0 = non-poor)								
	(1) $2.15	(2) $2.15	(3) $2.15	(4) $3.65	(5) $3.65	(6) $3.65	(7) $6.85	(8) $6.85	(9) $6.85
Panel A: DOU									
Urban center	-0.185***	-0.109***	-0.073***	-0.276***	-0.158***	-0.103***	-0.190***	-0.099***	-0.069***
	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.005)	(0.004)	(0.004)
Urban cluster	-0.088***	-0.058***	-0.044***	-0.118***	-0.072***	-0.052***	-0.064***	-0.030***	-0.019***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.003)	(0.003)	(0.003)
Panel B: DB									
Core	-0.164***	-0.098***	-0.067***	-0.227***	-0.125***	-0.079***	-0.156***	-0.079***	-0.053***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.004)	(0.004)	(0.004)
Suburb	-0.124***	-0.067***	-0.045***	-0.178***	-0.092***	-0.059***	-0.111***	-0.047***	-0.028***
	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)
Town	-0.057***	-0.038***	-0.034***	-0.070***	-0.043***	-0.036***	-0.033***	-0.014***	-0.010***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.003)	(0.003)	(0.003)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Education	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Employment	No	No	Yes	No	No	Yes	No	No	Yes
Panel A Adj.R^2	0.098	0.169	0.180	0.133	0.258	0.277	0.113	0.245	0.257
Panel B Adj.R^2	0.091	0.166	0.179	0.121	0.254	0.275	0.099	0.241	0.255
Nr. of countries	16	16	16	16	16	16	16	16	16
Nr. of hh	134444	134444	134444	134444	134444	134444	134444	134444	134444

Source: International Urban Poverty Database.
Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. GHSPOP 1km is used for the DOU and DB method. The dependent variable is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. The baseline category is "Rural" in all specifications in Panel A, and "Other rural" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table B6: Urban and poverty status changes in 16 SSA countries

(A) Original definitions to DOU		**Non-spatially deflated**				**Spatially deflated**			
Poverty status:		Non-poor		Poor		Non-poor		Poor	
DOU:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Official urban definition:									
Non-poor	Urban	78.8	21.2	0.0	0.0	77.7	21.1	1.2	0.1
	Rural	48.2	51.8	0.0	0.0	46.4	50.0	1.4	2.3
Poor	Urban	0.0	0.0	73.9	26.1	4.8	4.7	69.9	20.5
	Rural	0.0	0.0	37.4	62.6	0.1	1.9	36.8	61.1

(B) Original definitions to DB		**Non-spatially deflated**				**Spatially deflated**			
Poverty status:		Non-poor		Poor		Non-poor		Poor	
DOU:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Official urban definition:									
Non-poor	Urban	69.8	9.5	0.0	20.7	78.4	20.6	0.9	0.1
	Rural	30.0	28.0	0.0	42.1	55.0	40.9	2.2	1.9
Poor	Urban	0.0	0.0	72.8	27.2	6.7	4.4	71.0	17.9
	Rural	0.0	0.0	27.5	72.5	0.6	2.1	43.4	53.9

(C) DOU to DB		**Non-spatially deflated**				**Spatially deflated**			
Poverty status:		Non-poor		Poor		Non-poor		Poor	
DB:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
DOU:									
Non-poor	Urban	73.2	22.3	0.0	4.4	94.7	4.7	0.6	0.0
	Rural	4.3	17.6	0.0	78.1	21.1	77.4	1.1	0.5
Poor	Urban	0.0	0.0	81.6	18.4	3.3	0.4	85.4	11.0
	Rural	0.0	0.0	5.2	94.8	0.3	2.0	19.3	78.4

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line. In Panel (A), welfare is deflated using official spatial deflators. In Panel (B) and (C), welfare is deflated using our updated spatial deflators.

Table B7: Summary statistics by country

	AGO	BFA	CIV	ETH	GAB	GHA	GIN	GNB
Number of households	11,822	6,651	11,589	30,255	7,914	14,009	8,243	5,291
Survey years	2018/19	2018/19	2018/19	2015/16	2017	2016/17	2018/19	2018/19
Lowest geographic unit available	Bairro	PSU	PSU	HH	HH	PSU	PSU	PSU
DOU urban classification:								
Urban center	0.47	0.23	0.30	0.75	0.42	0.07	0.33	0.34
Urban cluster	0.08	0.08	0.25	0.21	0.23	0.08	0.16	0.15
Rural	0.45	0.69	0.46	0.04	0.35	0.85	0.51	0.51
DB urban classification:								
Core	0.47	0.22	0.28	0.60	0.57	0.02	0.31	0.30
Suburb	0.11	0.06	0.06	0.07	0.17	0.05	0.09	0.04
Town	0.11	0.13	0.35	0.24	0.10	0.10	0.28	0.21
Other rural	0.43	0.72	0.66	0.33	0.26	0.92	0.59	0.65
Consumption (per day USD in 2017 PPP terms):								
Real per capita consumption expenditures	5.68	4.42	5.12	3.70	12.32	3.39	4.44	4.11
Nominal per capita consumption expenditures	5.90	4.67	5.20	0.99	12.37	3.45	4.49	4.23
Demographic:								
Household size	6.44	8.93	6.21	5.76	5.90	5.64	6.26	11.34
Age of household head	42.87	48.63	44.92	22.53	44.88	46.97	46.28	49.21
Household head is male	0.74	0.91	0.84	0.80	0.71	0.71	0.83	0.83
Marital status (of household head):								
Married	0.10	0.90	0.78	0.84	0.27	0.65	0.89	0.80
Never married	0.04	0.02	0.15	0.02	0.25	0.06	0.02	0.06
Living together	0.66	0.01	0.00	0.00	0.38	0.10	0.00	0.01
Divorced/Separated	0.12	0.01	0.02	0.04	0.03	0.09	0.01	0.02
Widowed	0.09	0.06	0.06	0.09	0.07	0.10	0.08	0.10
Education (of household head):								
No education	0.16	0.76	0.50	0.51	0.19	0.27	0.55	0.40
Primary incomplete	0.30	0.10	0.19	0.33	0.09	0.11	0.13	0.28
Primary complete	0.05	0.03	0.03	0.05	0.08	0.04	0.00	0.09
Secondary incomplete	0.40	0.08	0.18	0.04	0.42	0.41	0.17	0.07
Secondary complete	0.02	0.00	0.03	0.02	0.07	0.06	0.02	0.08
Post secondary but not university	0.00	0.00	0.03	0.03	0.00	0.07	0.00	0.00
University incomplete and complete	0.06	0.03	0.05	0.03	0.16	0.05	0.12	0.07
Can read and write	0.75	0.32	0.53	0.46	0.91	0.52	0.40	0.57
Employment (of household head):								
Not in labor force	0.09	0.07	0.08	0.08	0.21	0.02	0.06	0.09
Unemployed	0.06	0.00	0.00	0.00	0.04	0.02	0.01	0.00
Employed in Agriculture	0.34	0.66	0.52	0.72	0.14	0.42	0.41	0.47
Employed in Industry	0.09	0.08	0.09	0.05	0.14	0.14	0.15	0.10
Employed in Services	0.42	0.18	0.31	0.15	0.48	0.40	0.38	0.34
Access to basic services								
Improved water	0.68	0.81	0.78	0.57	0.88	0.59	0.79	0.78
Improved sanitation facility	0.46	0.30	0.33	0.04	0.32	0.20	0.29	0.37
Access to electricity	0.47	0.53	0.80	0.36	0.91	0.81	0.44	0.58

Source: International Urban Poverty Database.

Note: Real per capita consumption expenditures are deflated using a spatial deflator calculated based on the GHSPOP 1km dataset and the DOU method.

Table B7: Summary statistics by country (cont.)

	LSO	MRT	MWI	NER	SEN	TCD	TZA	UGA
Number of households	4,294	9,341	12,439	6,024	6,843	7,493	9,463	15,572
Survey years	2017/18	2014	2016/17	2018/19	2018/19	2018/19	2017 – 19	2016/17
Lowest geographic unit available	HH	HH	HH	PSU	PSU	PSU	HH	Parish
DOU urban classification:								
Urban center	0.11	0.29	0.11	0.17	0.44	0.18	0.17	0.15
Urban cluster	0.17	0.09	0.22	0.09	0.13	0.09	0.28	0.39
Rural	0.71	0.62	0.67	0.74	0.43	0.73	0.56	0.46
DB urban classification:								
Core	0.04	0.33	0.07	0.15	0.39	0.20	0.22	0.06
Suburb	0.21	0.04	0.12	0.09	0.12	0.10	0.13	0.11
Town	0.11	0.09	0.08	0.17	0.16	0.10	0.27	0.32
Other rural	0.75	0.63	0.82	0.76	0.49	0.70	0.65	0.82
Consumption (per day USD in 2017 PPP terms):								
Real per capita consumption expenditures	4.64	5.71	2.40	2.66	5.57	3.77	3.39	3.52
Nominal per capita consumption expenditures	4.62	5.74	2.44	2.79	5.82	3.90	3.50	3.54
Demographic:								
Household size	5.27	7.47	5.19	7.58	12.69	6.88	6.18	5.89
Age of household head	51.07	49.92	43.12	46.01	53.44	43.96	47.38	43.43
Household head is male	0.63	0.74	0.75	0.87	0.76	0.81	0.76	0.74
Marital status (of household head):								
Married	0.58	0.83	0.78	0.93	0.86	0.86	0.75	0.79
Never married	0.06	0.01	0.01	0.00	0.02	0.01	0.03	0.03
Living together	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Divorced/Separated	0.05	0.06	0.11	0.02	0.02	0.05	0.07	0.07
Widowed	0.31	0.09	0.10	0.05	0.11	0.08	0.11	0.10
Education (of household head):								
No education	0.00	0.75	0.16	0.68	0.55	0.52	0.20	0.13
Primary incomplete	0.48	0.09	0.55	0.17	0.17	0.21	0.14	0.40
Primary complete	0.16	0.02	0.06	0.01	0.05	0.03	0.52	0.18
Secondary incomplete	0.19	0.08	0.12	0.10	0.15	0.18	0.10	0.19
Secondary complete	0.08	0.02	0.07	0.00	0.01	0.01	0.00	0.02
Post secondary but not university	0.03	0.00	0.02	0.01	0.01	0.01	0.02	0.05
University incomplete and complete	0.05	0.04	0.01	0.02	0.06	0.05	0.02	0.03
Can read and write	0.79	0.61	0.72	0.36	0.47	0.32	0.76	0.72
Employment (of household head):								
Not in labor force	0.26	0.20	0.48	0.02	0.17	0.02	0.29	0.08
Unemployed	0.04	0.17	0.06	0.00	0.00	0.00	0.09	0.01
Employed in Agriculture	0.24	0.19	0.06	0.66	0.31	0.69	0.36	0.54
Employed in Industry	0.20	0.07	0.07	0.07	0.12	0.06	0.05	0.09
Employed in Services	0.26	0.37	0.32	0.25	0.40	0.23	0.21	0.29
Access to basic services								
Improved water	0.86	0.61	0.87	0.62	0.85	0.66	0.71	0.77
Improved sanitation facility	0.45	0.51	0.52	0.15	0.63	0.13	0.28	0.22
Access to electricity	0.41	0.46	0.93	0.21	0.74	0.10	0.56	0.39

Source: International Urban Poverty Database.

Note: Real per capita consumption expenditures are deflated using a spatial deflator calculated based on the GHSPOP 1km dataset and the DOU method.

Table B8: Profile of the poor across urban versus rural areas

		Poor by DOU				Poor by DB				
	All	Urban	Urban center	Urban cluster	Urban Rural	Urban	Core	Suburb	Town	Other Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Demographic:										
Household size	6.55	6.98	6.97	6.99	7.73	7.25	7.18	6.87	7.46	7.55
Age of household head	40.31	34.58	28.69	40.83	45.57	36.94	30.09	43.46	40.51	44.60
Household head is male	0.78	0.79	0.80	0.78	0.80	0.79	0.80	0.75	0.80	0.79
No education	0.37	0.41	0.50	0.32	0.44	0.42	0.49	0.34	0.40	0.44
Primary complete or incomplete	0.39	0.49	0.40	0.57	0.46	0.48	0.42	0.54	0.51	0.47
Secondary complete or incomplete	0.18	0.09	0.09	0.10	0.09	0.09	0.08	0.11	0.08	0.09
Tertiary complete or incomplete	0.06	0.01	0.02	0.01	0.00	0.01	0.01	0.01	0.01	0.00
Employment (of household head):										
Not in labor force	0.12	0.13	0.10	0.17	0.16	0.14	0.10	0.21	0.15	0.16
Unemployed	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.07	0.03	0.03
Employed in Agriculture	0.52	0.63	0.64	0.62	0.67	0.64	0.63	0.48	0.69	0.68
Employed in Industry	0.08	0.06	0.07	0.06	0.04	0.06	0.07	0.07	0.04	0.04
Employed in Services	0.26	0.15	0.18	0.12	0.10	0.14	0.17	0.17	0.09	0.10
Access to basic services										
Improved water	0.69	0.66	0.61	0.71	0.62	0.64	0.62	0.70	0.63	0.64
Improved sanitation facility	0.24	0.16	0.12	0.20	0.20	0.17	0.13	0.26	0.16	0.20
Access to electricity	0.48	0.30	0.31	0.27	0.21	0.28	0.31	0.31	0.26	0.20

Source: International Urban Poverty Database.
Note: GHSPOP 1km is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line.

Table B9: Estimation results of regressions on log expenditures with control variables: DOU

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Urban center	0.634***	0.380***	0.274***	0.171***	0.432***	0.259***	0.186***	0.105***
	(0.010)	(0.009)	(0.009)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)
Urban cluster	0.265***	0.169***	0.129***		0.169***	0.110***	0.086***	
	(0.009)	(0.009)	(0.008)		(0.009)	(0.009)	(0.009)	
Spatial deflator					1.263***	0.837***	0.677***	0.851***
					(0.036)	(0.029)	(0.028)	(0.036)
Demographic:								
Household size		−0.084***	−0.082***	−0.114***		−0.083***	−0.081***	−0.114***
		(0.002)	(0.002)	(0.003)		(0.002)	(0.002)	(0.003)
Age of head of hh		0.007***	0.007***	0.007***		0.006***	0.007***	0.007***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Sex of head of hh		−0.020**	0.012	−0.079***		−0.002	0.023**	−0.052***
		(0.009)	(0.009)	(0.014)		(0.009)	(0.009)	(0.014)
Marital status (of head of hh):								
Never married		0.369***	0.346***	0.319***		0.360***	0.341***	0.313***
		(0.014)	(0.014)	(0.018)		(0.014)	(0.014)	(0.018)
Living together		−0.044**	−0.057***	0.018		−0.063***	−0.071***	0.006
		(0.018)	(0.018)	(0.032)		(0.018)	(0.018)	(0.031)
Divorced/Separated		0.052***	0.039**	0.002		0.058***	0.045***	0.019
		(0.016)	(0.015)	(0.024)		(0.016)	(0.015)	(0.023)
Widowed		0.070***	0.071***	0.081***		0.070***	0.070***	0.083***
		(0.013)	(0.013)	(0.019)		(0.013)	(0.013)	(0.018)
Education (of head of hh):								
Primary incomplete		0.116***	0.093***	0.132***		0.100***	0.083***	0.111***
		(0.009)	(0.009)	(0.012)		(0.009)	(0.009)	(0.012)
Primary complete		0.311***	0.253***	0.383***		0.278***	0.231***	0.333***
		(0.012)	(0.012)	(0.019)		(0.012)	(0.012)	(0.019)
Secondary incomplete		0.506***	0.408***	0.530***		0.470***	0.389***	0.485***
		(0.010)	(0.010)	(0.015)		(0.010)	(0.010)	(0.015)
Secondary complete		0.705***	0.551***	0.709***		0.650***	0.522***	0.633***
		(0.016)	(0.016)	(0.019)		(0.016)	(0.016)	(0.020)
Post secondary but not university		0.877***	0.690***	0.897***		0.835***	0.674***	0.842***
		(0.018)	(0.019)	(0.022)		(0.018)	(0.018)	(0.022)
University incomplete and complete		1.072***	0.895***	1.056***		1.013***	0.864***	0.987***
		(0.017)	(0.018)	(0.020)		(0.017)	(0.018)	(0.021)
Employment (of head of hh):								
Unemployed			0.104***				0.095***	
			(0.019)				(0.019)	
Not in labor force			0.134***				0.118***	
			(0.012)				(0.012)	
Employed in Industry			0.289***				0.259***	
			(0.012)				(0.011)	
Employed in Services			0.362***				0.328***	
			(0.009)				(0.009)	
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Adjusted R2	0.521	0.659	0.673	0.741	0.540	0.667	0.678	0.748
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134630	134630	134630	73365	134630	134630	134630	73365

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors in parentheses. GHSPOP 1km is used for the DOU method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Urban center" or "Urban cluster") are included in specifications (4) and (8). The baseline category is "Rural" in all specifications, except (4) and (8), where it is "Urban cluster". Baseline categories for the control variables are the following: "Married" for marital status of household head, "No education" for education of household head, and "Employed in Agriculture" for employment of household head. Robust standard errors are in parentheses. Observations are weighted using population weights.

Table B10: Estimation results of regressions on log expenditures with control variables: DB

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Core	0.534***	0.318***	0.227***	0.135***	0.360***	0.218***	0.155***	0.129***
	(0.010)	(0.009)	(0.009)	(0.013)	(0.011)	(0.010)	(0.010)	(0.013)
Suburb	0.417***	0.232***	0.167***		0.239***	0.126***	0.089***	
	(0.014)	(0.012)	(0.012)		(0.014)	(0.012)	(0.012)	
Town	0.164***	0.107***	0.095***		0.103***	0.071***	0.067***	
	(0.009)	(0.008)	(0.008)		(0.009)	(0.008)	(0.008)	
Spatial deflator					1.323***	0.847***	0.678***	1.044***
					(0.031)	(0.027)	(0.027)	(0.035)
Demographic:								
Household size		−0.085***	−0.082***	−0.109***		−0.083***	−0.081***	−0.109***
		(0.002)	(0.002)	(0.003)		(0.002)	(0.002)	(0.003)
Age of head of hh		0.007***	0.007***	0.008***		0.006***	0.007***	0.007***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Sex of head of hh		−0.021**	0.012	−0.060***		−0.003	0.024**	−0.029*
		(0.009)	(0.009)	(0.016)		(0.009)	(0.009)	(0.016)
Marital status (of head of hh):								
Never married		0.378***	0.351***	0.358***		0.366***	0.344***	0.346***
		(0.014)	(0.014)	(0.021)		(0.014)	(0.014)	(0.021)
Living together		−0.043**	−0.057***	0.033		−0.059***	−0.068***	0.021
		(0.019)	(0.018)	(0.034)		(0.018)	(0.018)	(0.033)
Divorced/Separated		0.060***	0.044***	0.013		0.067***	0.051***	0.031
		(0.016)	(0.015)	(0.028)		(0.016)	(0.015)	(0.028)
Widowed		0.075***	0.074***	0.120***		0.075***	0.075***	0.118***
		(0.013)	(0.013)	(0.021)		(0.013)	(0.013)	(0.021)
Education (of head of hh):								
Primary incomplete		0.118***	0.094***	0.141***		0.105***	0.085***	0.112***
		(0.009)	(0.009)	(0.014)		(0.009)	(0.009)	(0.014)
Primary complete		0.322***	0.257***	0.395***		0.291***	0.238***	0.324***
		(0.012)	(0.012)	(0.021)		(0.012)	(0.012)	(0.022)
Secondary incomplete		0.529***	0.420***	0.580***		0.494***	0.401***	0.513***
		(0.010)	(0.010)	(0.017)		(0.010)	(0.010)	(0.016)
Secondary complete		0.729***	0.560***	0.739***		0.674***	0.530***	0.628***
		(0.016)	(0.016)	(0.021)		(0.016)	(0.016)	(0.021)
Post secondary but not university		0.898***	0.695***	0.927***		0.857***	0.680***	0.848***
		(0.019)	(0.019)	(0.026)		(0.019)	(0.019)	(0.027)
University incomplete and complete		1.114***	0.915***	1.071***		1.052***	0.882***	0.968***
		(0.017)	(0.018)	(0.021)		(0.017)	(0.018)	(0.021)
Employment (of head of hh):								
Unemployed			0.122***				0.105***	
			(0.019)				(0.020)	
Not in labor force			0.142***				0.122***	
			(0.012)				(0.012)	
Employed in Industry			0.308***				0.276***	
			(0.012)				(0.011)	
Employed in Services			0.382***				0.349***	
			(0.008)				(0.008)	
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Adjusted R2	0.509	0.655	0.671	0.747	0.530	0.663	0.676	0.758
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	134202	134202	134202	59863	134202	134202	134202	59863

Source: International Urban Poverty Database.

Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. GHSPOP 1km is used for the DB methods. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Core" or "Suburb") are included in specifications (4) and (8). The baseline category is "Other rural" in all specifications, except (4) and (8), where it is "Suburb". Baseline categories are the following: "Married" for the marital status of the household head, "No education" for the education of the household head, and "Employed in Agriculture" for the employment of the household head. Observations are weighted using population weights.

Table B11: Access to basic amenities and location

	Water			Sanitation			Electricity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: DOU									
Urban center	0.229***	0.202***	0.147***	0.210***	0.163***	0.124***	0.384***	0.288***	0.179***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Urban cluster	0.131***	0.120***	0.098***	0.102***	0.083***	0.067***	0.148***	0.108***	0.063***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Log of real exp.		0.058***	0.030***		0.100***	0.093***		0.206***	0.160***
		(0.003)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Panel B: DB									
Core	0.203***	0.176***	0.128***	0.181***	0.139***	0.104***	0.331***	0.244***	0.150***
	(0.006)	(0.006)	(0.007)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Suburb	0.147***	0.128***	0.093***	0.168***	0.138***	0.115***	0.228***	0.168***	0.098***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.008)
Town	0.073***	0.065***	0.056***	0.064***	0.051***	0.043***	0.088***	0.061***	0.042***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
Log of real exp.		0.066***	0.035***		0.104***	0.095***		0.217***	0.165***
		(0.003)	(0.004)		(0.003)	(0.003)		(0.003)	(0.003)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	No	Yes	No	No	Yes	No	No	Yes
Education	No	No	Yes	No	No	Yes	No	No	Yes
Employment	No	No	Yes	No	No	Yes	No	No	Yes
Panel A Adj.R^2	0.073	0.080	0.097	0.165	0.189	0.225	0.204	0.277	0.341
Panel B Adj.R^2	0.065	0.074	0.094	0.159	0.186	0.223	0.186	0.270	0.338
Nr. of countries	16	16	16	16	16	16	16	16	16
Nr. of hh	134196	134196	134196	134196	134196	134196	130866	130866	130866

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. GHSPOP 1km is used for the DOU and DB method. The dependent variable is a dummy variable taking the value 1 if a household has access to a respective amenity. The baseline category is "Urban center" in all specifications in Panel A, and "Cores" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

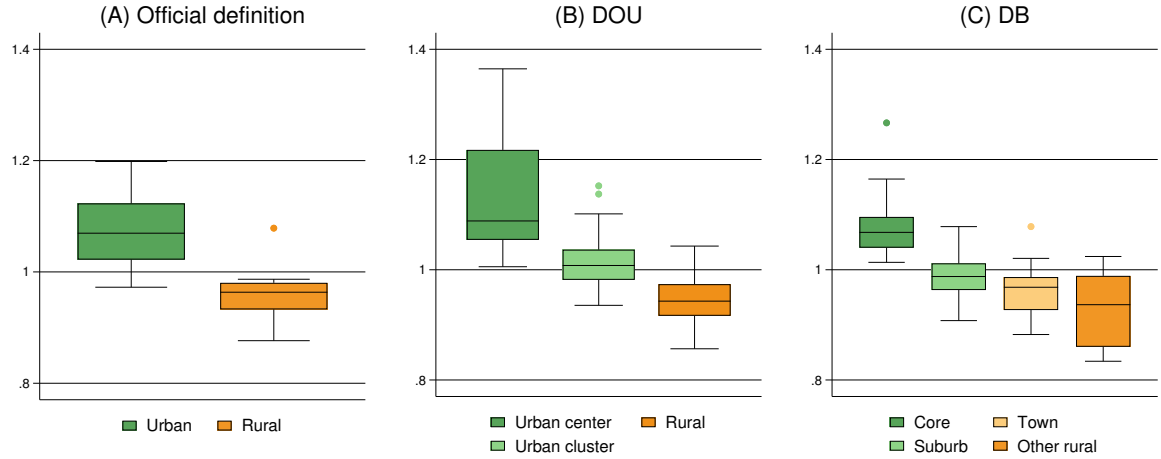
Table B12: Employment shares across locations

	Agriculture				Services			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: DOU								
Urban center	-0.507***	-0.494***	-0.392***	-0.133***	0.423***	0.413***	0.315***	0.111***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Urban cluster	-0.195***	-0.191***	-0.147***	-0.045***	0.158***	0.155***	0.114***	0.038***
	(0.006)	(0.006)	(0.006)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Panel B: DB								
Core	-0.427***	-0.416***	-0.322***	-0.111***	0.358***	0.348***	0.260***	0.093***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Suburb	-0.326***	-0.316***	-0.239***	-0.079***	0.262***	0.254***	0.182***	0.063***
	(0.008)	(0.008)	(0.008)	(0.005)	(0.008)	(0.008)	(0.007)	(0.005)
Town	-0.079***	-0.076***	-0.048***	-0.018***	0.064***	0.061***	0.036***	0.014***
	(0.005)	(0.005)	(0.005)	(0.003)	(0.005)	(0.005)	(0.004)	(0.003)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Education	No	No	Yes	Yes	No	No	Yes	Yes
Employment	No	No	No	Yes	No	No	No	Yes
Panel A Adj.R^2	0.266	0.286	0.372	0.791	0.211	0.227	0.317	0.751
Panel B Adj.R^2	0.232	0.254	0.352	0.789	0.183	0.201	0.303	0.750
Nr. of countries	16	16	16	16	16	16	16	16
Nr. of hh	119276	119276	119276	119276	119276	119276	119276	119276

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. GHSPOP 1km is used for the DOU and DB method. The dependent variable is a share of household workers employed in a respective sector. The baseline category is "Urban center" in all specifications in Panel A, and "Cores" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

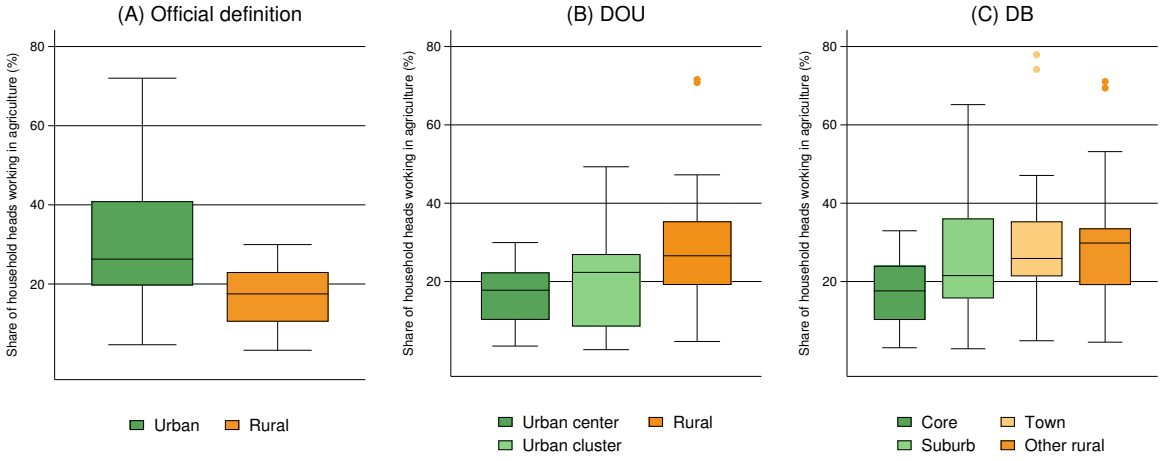
C Results for all 20 countries

Figure C1: Cost of living index across urban versus rural areas in 20 countries



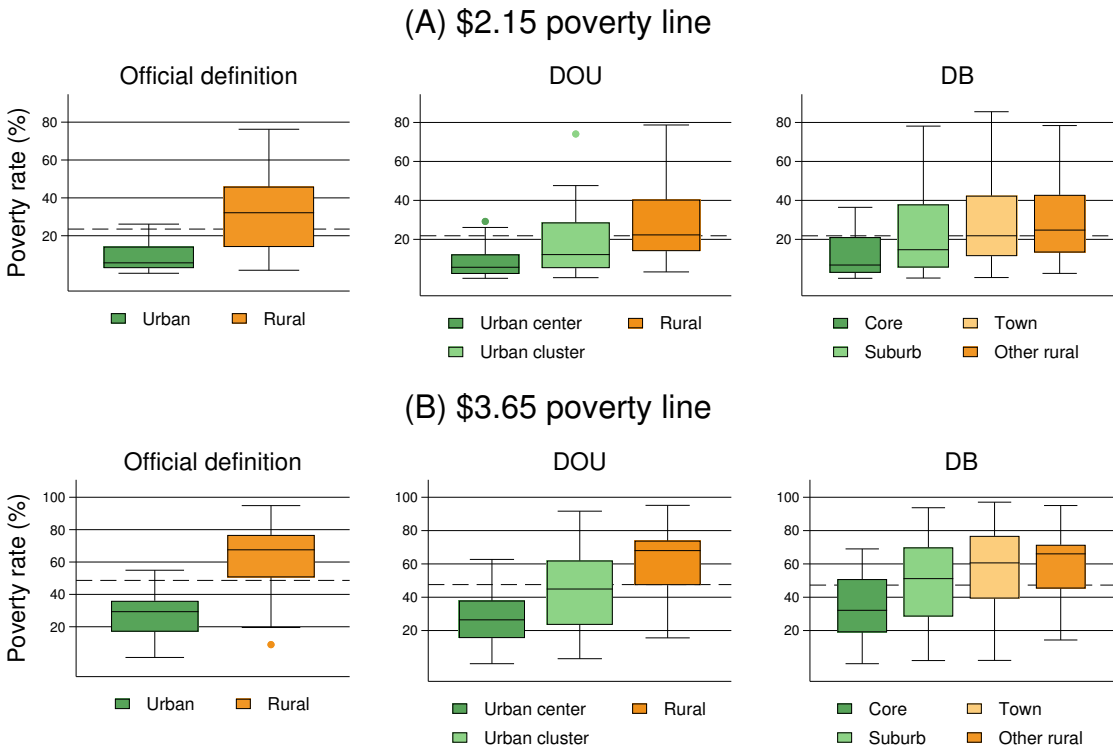
Source: International Urban Poverty Database.
Note: DOU: Degree of urbanization. DB: Dartboard. The cost-of-living index is prepared as a spatial deflator for each country in this study. It is normalized to 1 for each country. WorldPop 250m is used for both the DOU and DB methods.

Figure C2: Share of household heads working in agriculture across urban versus rural areas



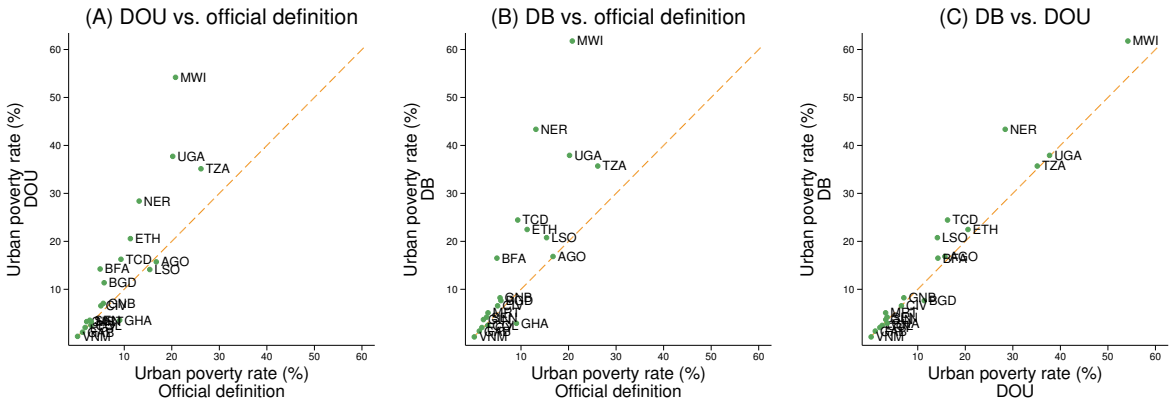
Source: International Urban Poverty Database.
Note: Each boxplot shows the share of household heads working in agriculture over different geographic areas in 19 countries. WorldPop 250m is used for the DOU and DB methods.

Figure C3: Poverty rates across urban versus rural areas



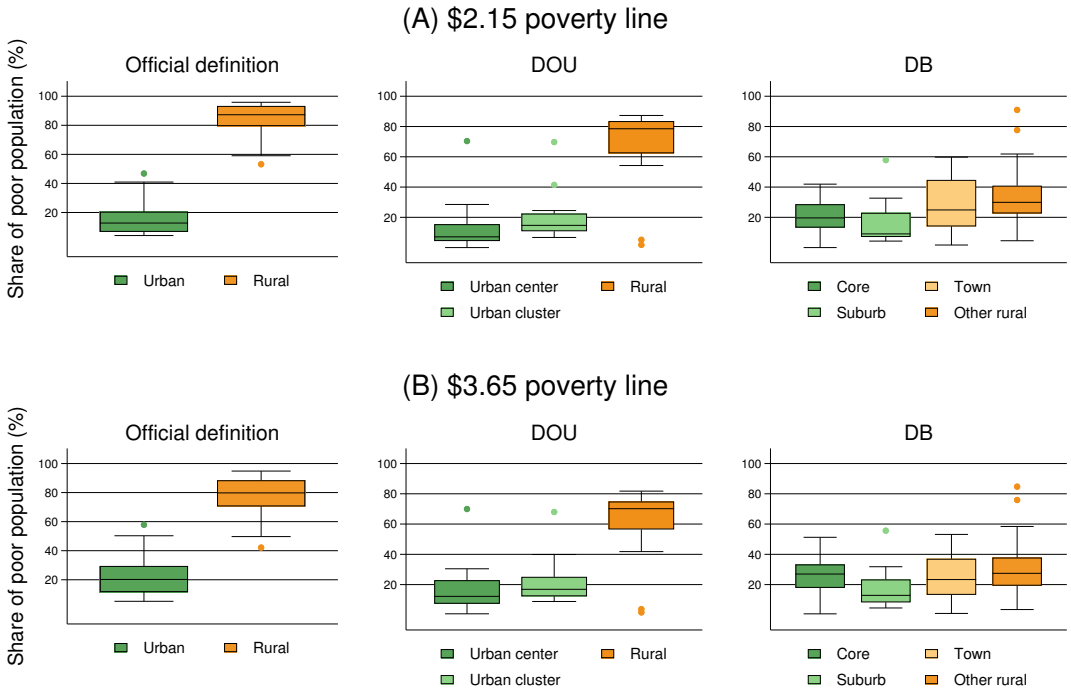
Source: International Urban Poverty Database.
Note: Each boxplot shows the distributions of poverty rates over different geographic areas in 20 countries. WorldPop 250m is used for the DOU and DB methods. The dashed lines represent the average national poverty rate in the sample.

Figure C4: Comparison of urban poverty rates between official and DOU/DB urban definitions



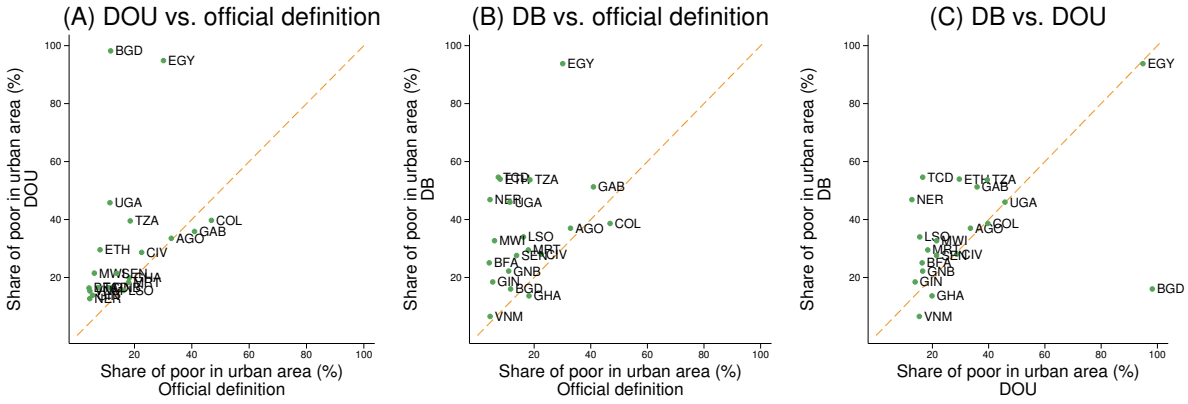
Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure C5: Distribution of poor population across urban versus rural areas



Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Each boxplot shows the distribution of the share of the poor population over different geographic areas in 20 countries.

Figure C6: Comparison of urban shares of poor populations between official and DOU/DB urban definitions



Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Dashed lines are 45-degree lines. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure C7: Urbanization, poverty and inequality

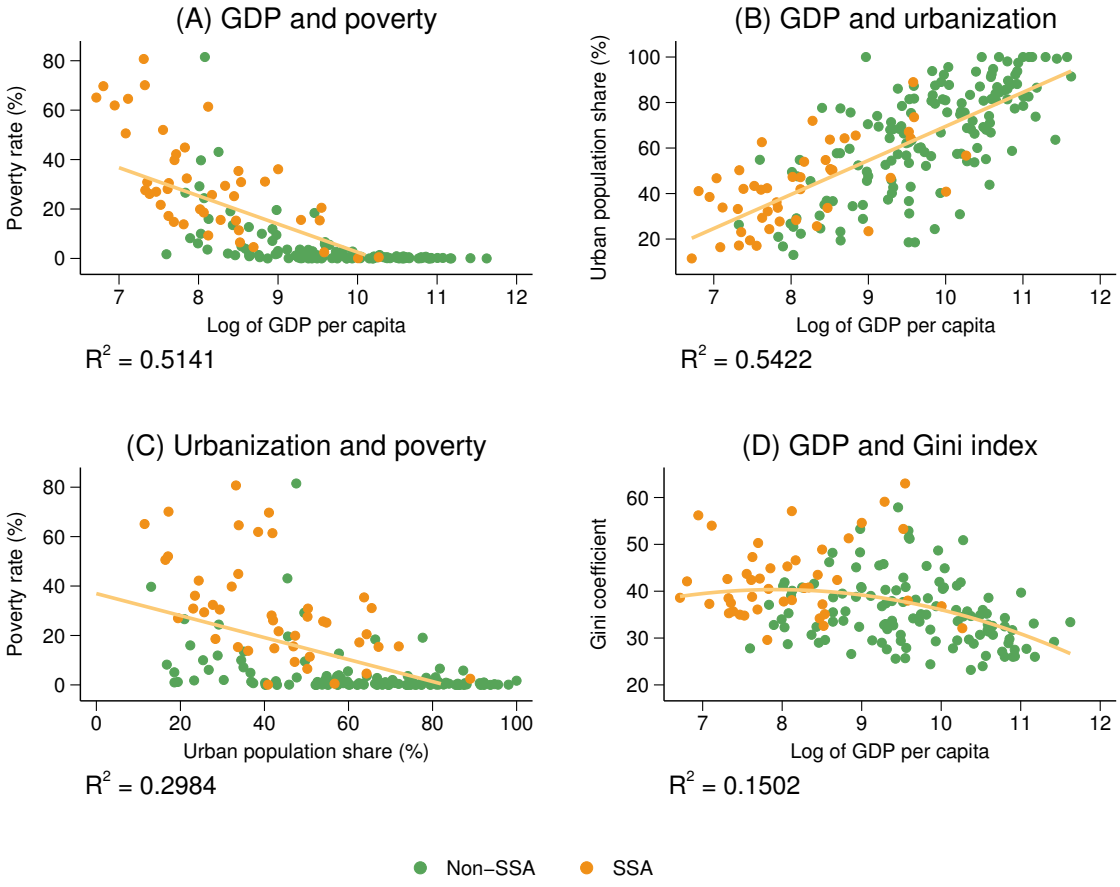
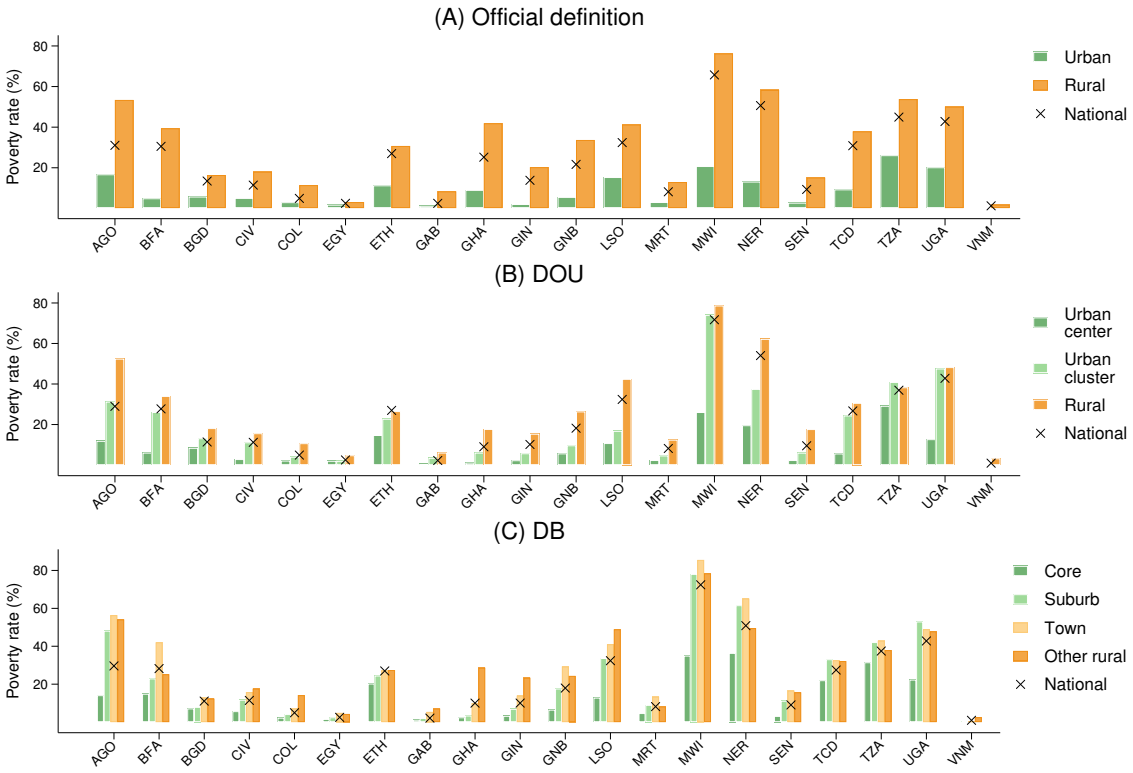
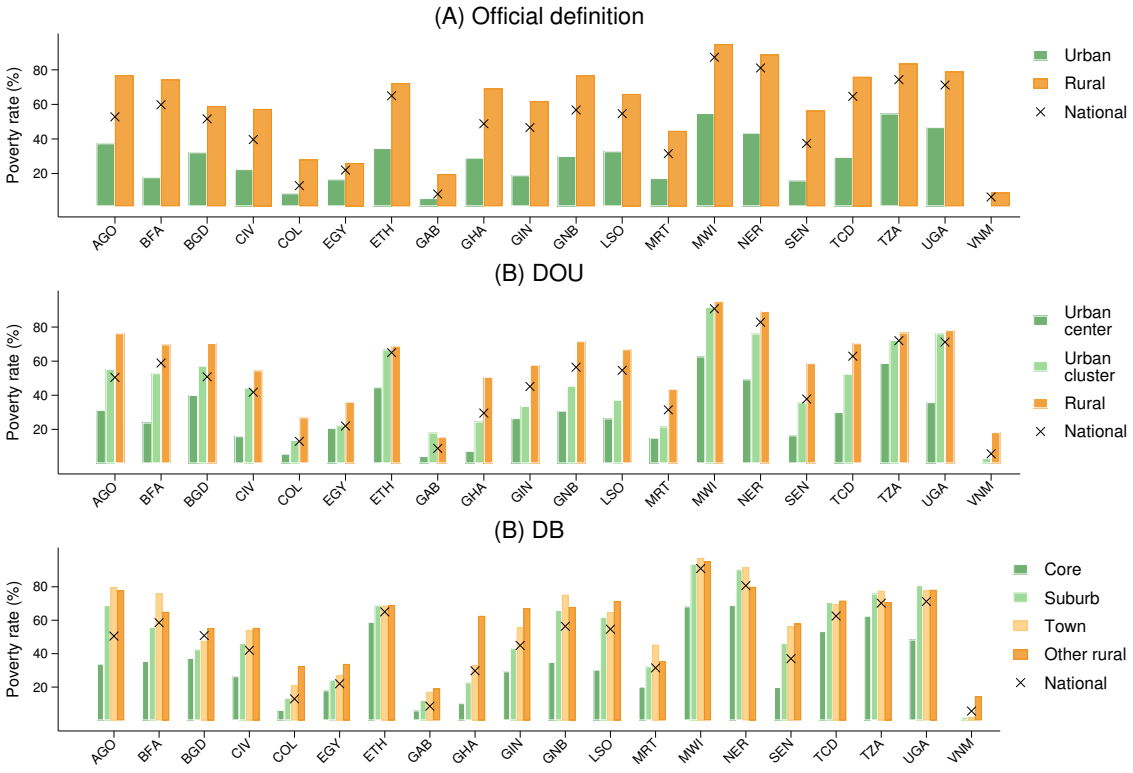


Figure C8: Poverty rates across urban versus rural areas by country, $2.15 poverty line



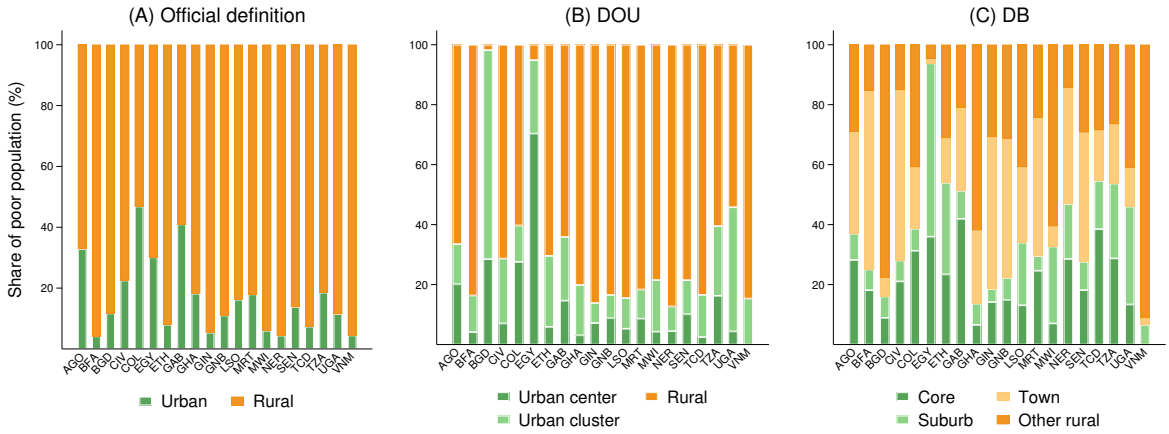
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure C9: Poverty rates across urban versus rural areas by country, $3.65 poverty line



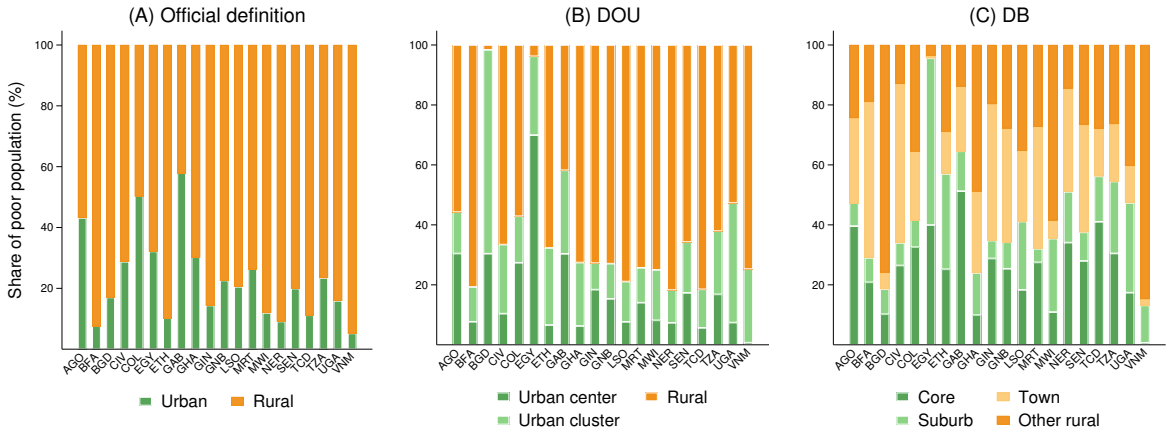
Source: International Urban Poverty Database. Note: For the DOU and DB methods, WorldPop 250m is used.

Figure C10: Distributions of poor populations across urban versus rural areas by country, $2.15 poverty line



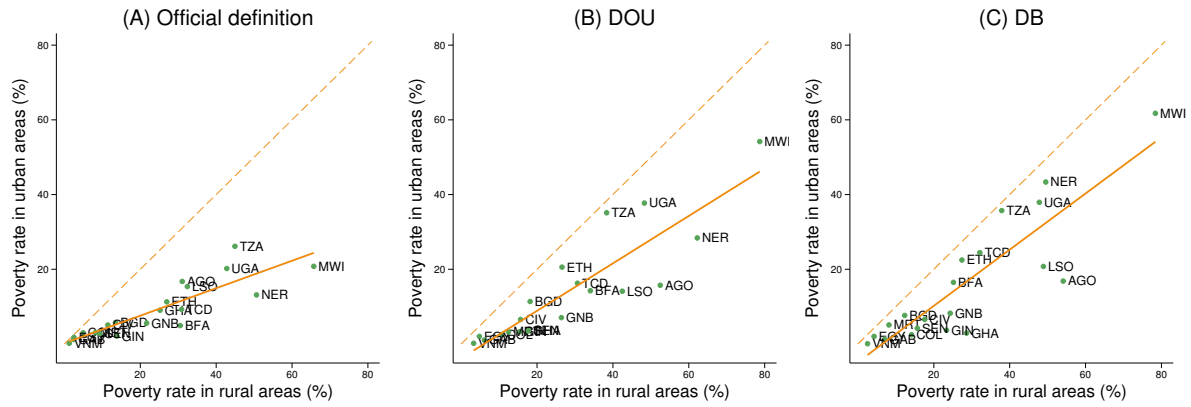
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used.

Figure C11: Distributions of poor populations across urban versus rural areas by country, $3.65 poverty line



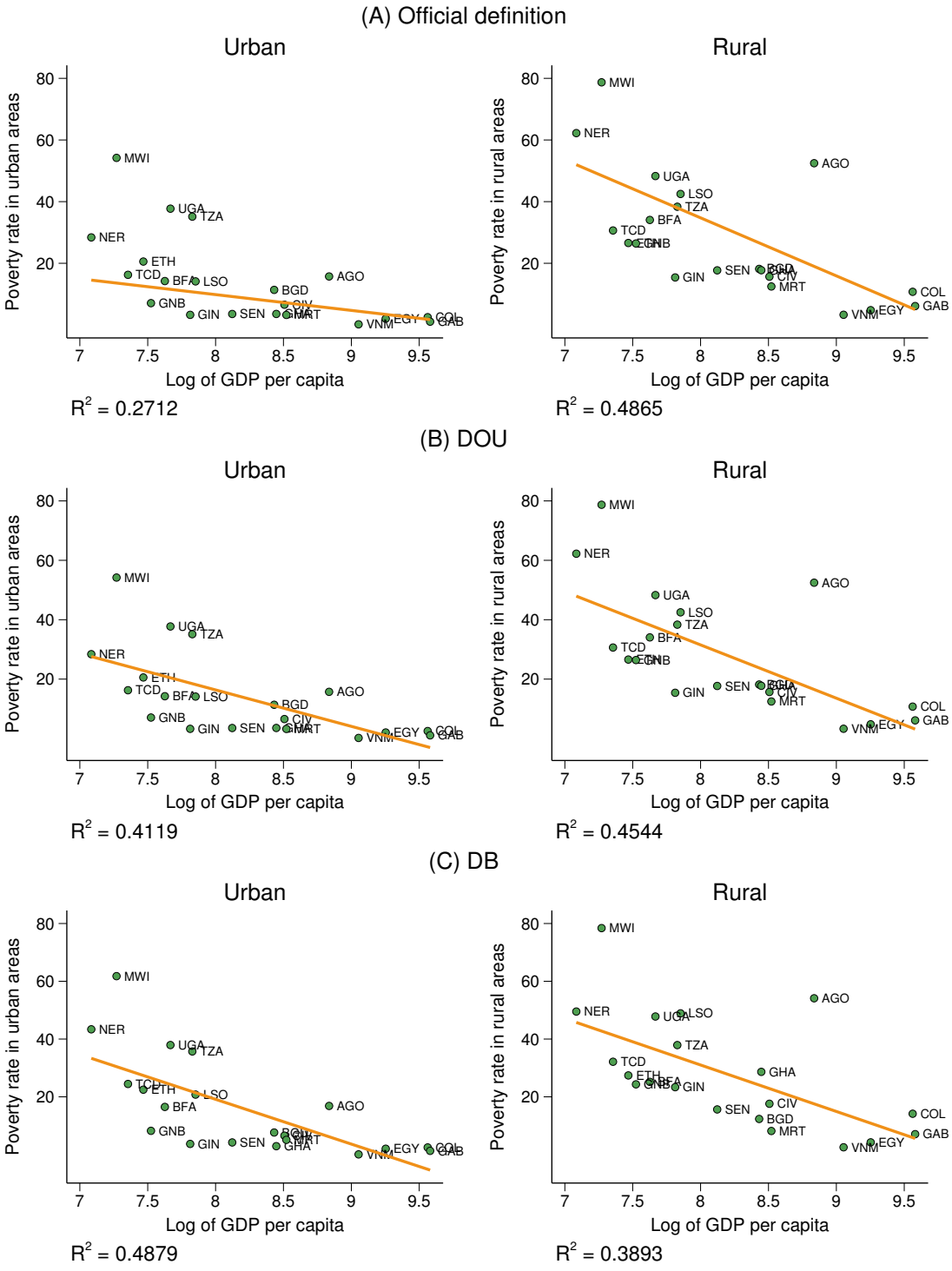
Source: International Urban Poverty Database. Note: For the DOU and DB methods, WorldPop 250m is used.

Figure C12: Comparison of urban and rural poverty rates



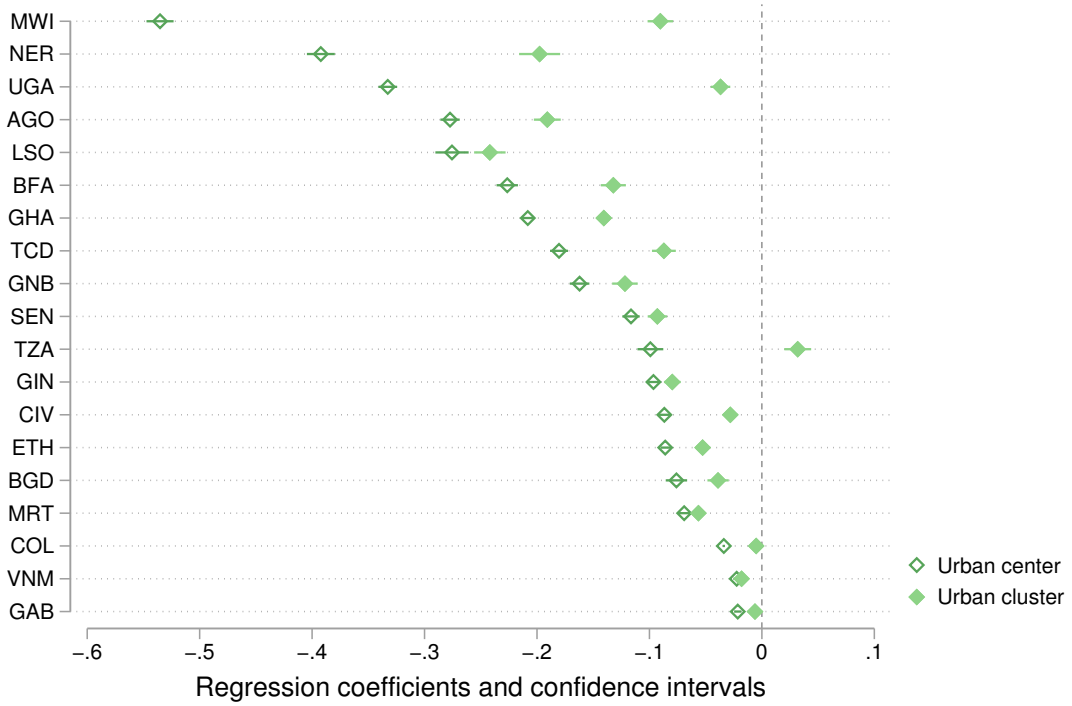
Source: International Urban Poverty Database. Note: WorldPop 250m is used for the DOU and DB methods. Dashed lines are 45-degree lines. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method and the categories "Core" and "Suburb" for the DB method. Dashed lines are 45-degree lines. Poverty is measured using the $2.15 poverty line.

Figure C13: Poverty rates and GDP



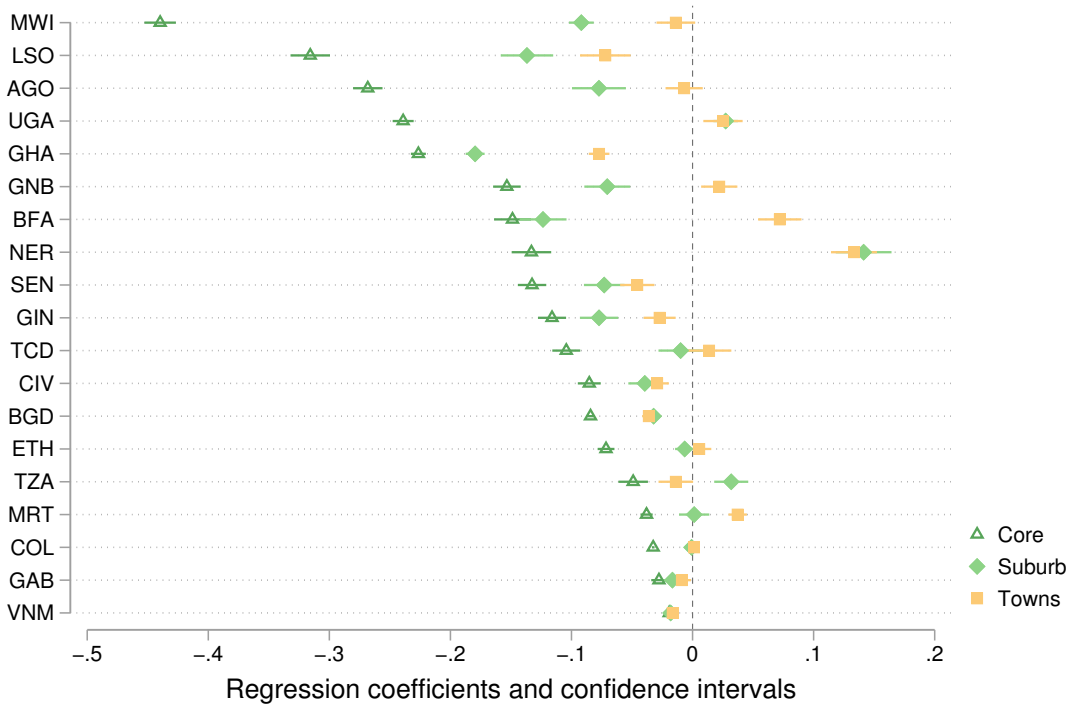
Source: International Urban Poverty Database. Note: GDP per capita is measured in PPP (constant 2017 international $). For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method. Poverty is measured using the $2.15 poverty line.

Figure C14: Heterogeneity in poverty gradient across countries, DOU



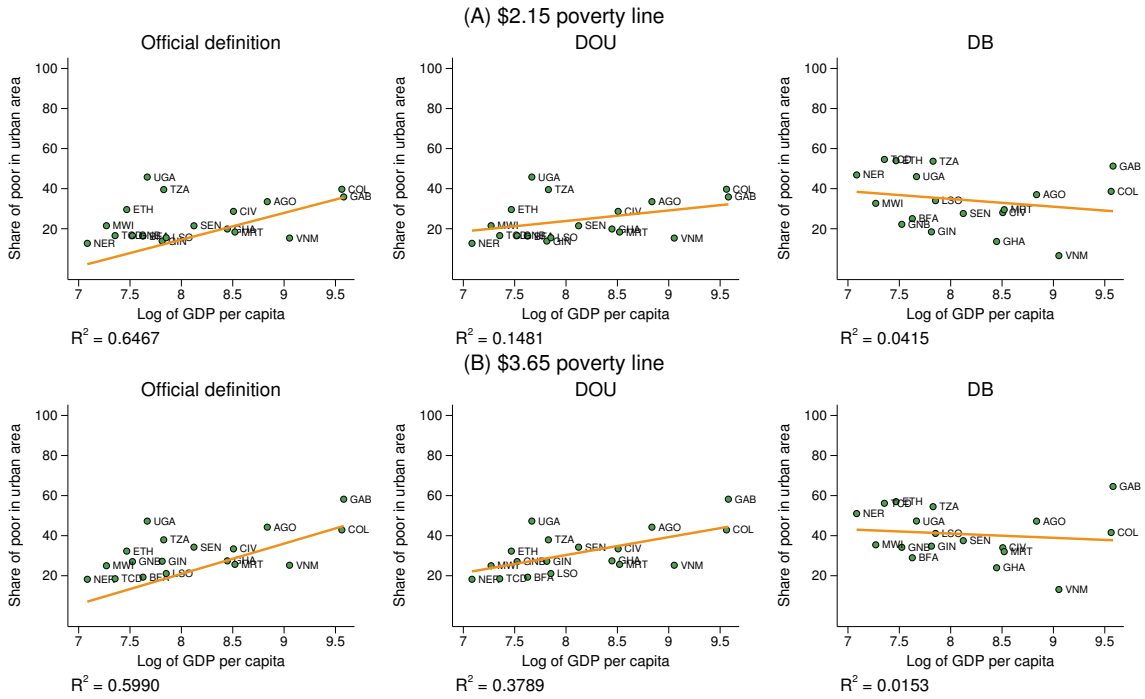
Source: International Urban Poverty Database. Each dot represents the regression coefficients $DOU_{j(i)}$ of regression 5 for each country c, excluding control variables. Confidence intervals are represented with a line. The dependent variable POV_i is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. $DOU_{j(i)}$ is a vector of dummy variables: "Urban cluster" ("Urban area") takes the value 1 if household i lives in an "Urban cluster" ("Urban area") as defined by the DOU method. The baseline category is "Rural". WorldPop 250m is used.

Figure C15: Heterogeneity in poverty gradient across countries, DB



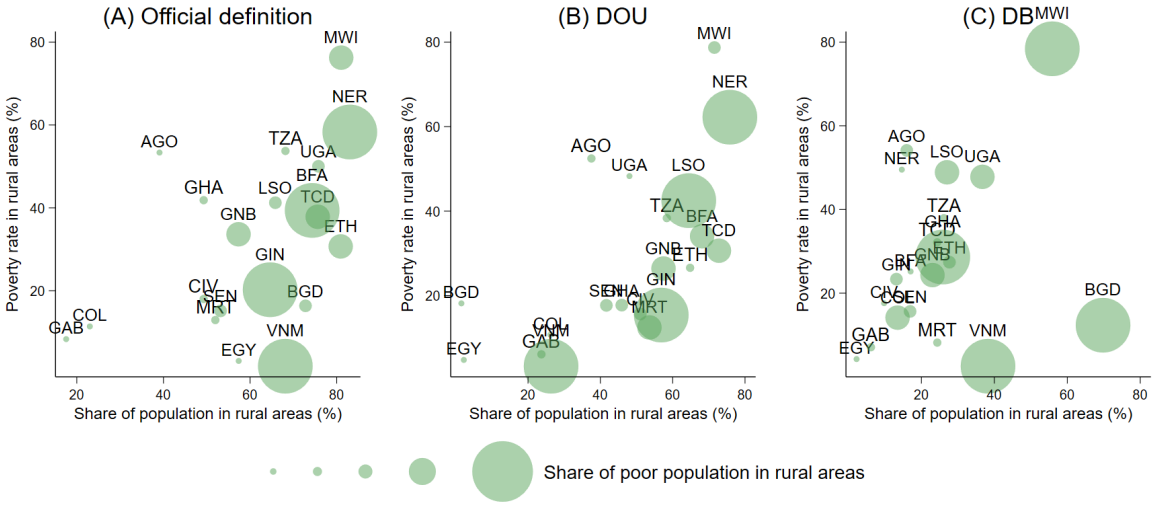
Source: International Urban Poverty Database.
Each dot represents the regression coefficients $DB_{j(i)}$ of regression 6 for each country c, excluding control variables. Confidence intervals are represented with a line. The dependent variable POV_i is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. $DB_{j(i)}$ is a vector of dummy variables: "Core", "Suburb", "Town" respectively take the value 1 if household i lives in an "Core", "Suburb" or "Town" as defined by the DB method. The baseline category is "Other rural". WorldPop 250m is used.

Figure C16: Share of poor in urban areas and GDP



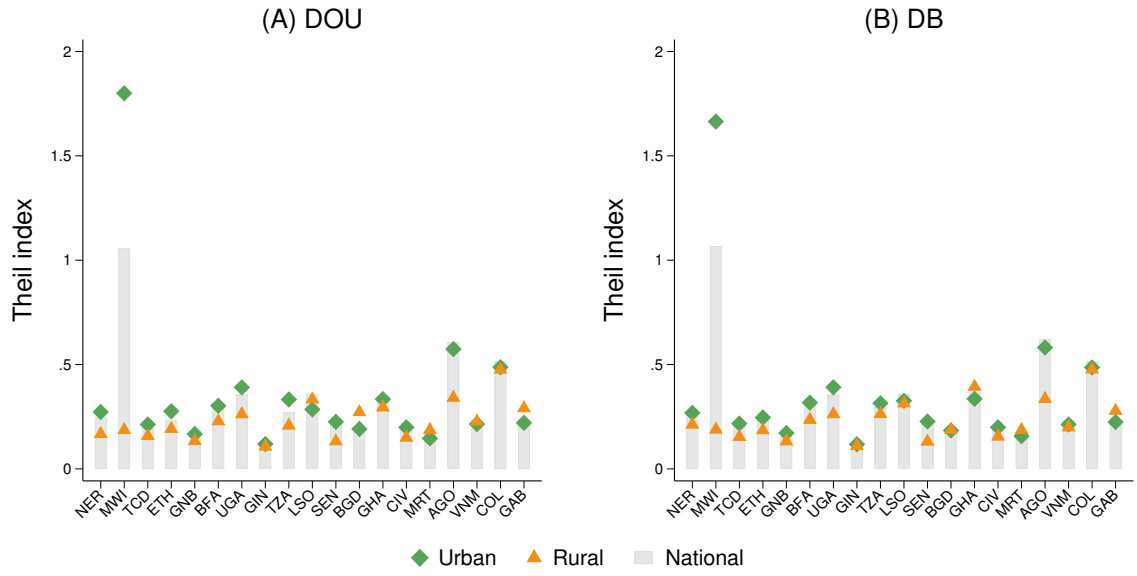
Source: International Urban Poverty Database.
Note: Bangladesh and Egypt are outliers and are not included. GDP per capita is measured in PPP (constant 2017 international $). For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure C17: Poverty rates, population shares, and poor population shares in rural areas



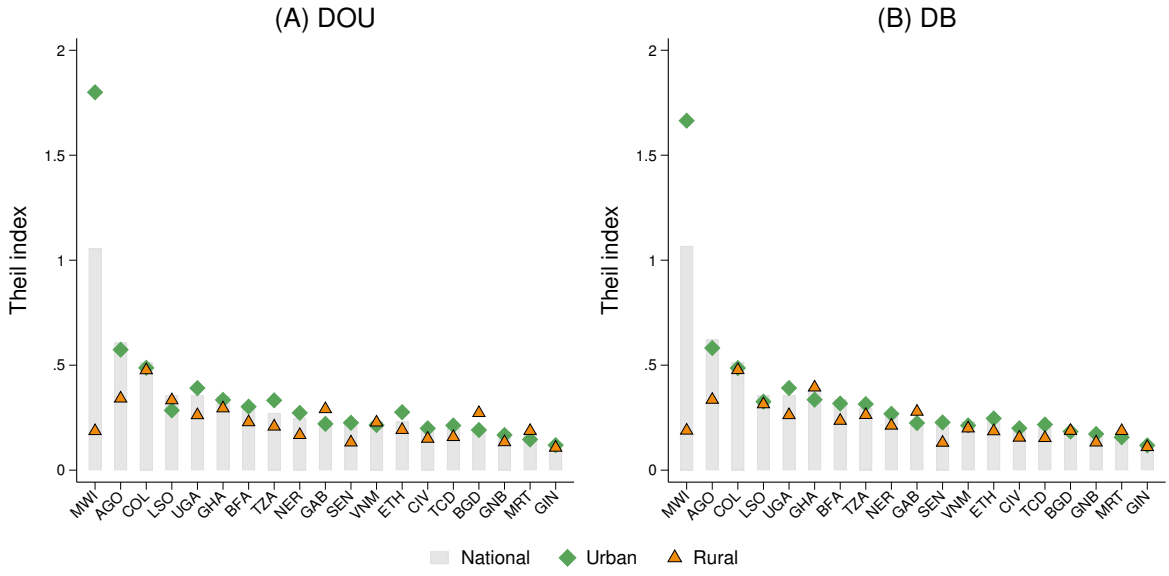
Source: International Urban Poverty Database.
Note: The size of each circle is proportional to the share of the poor population in rural areas for each country. WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line.

Figure C18: Theil indexes at the national and across urban versus rural areas, sorted by GDP per capita



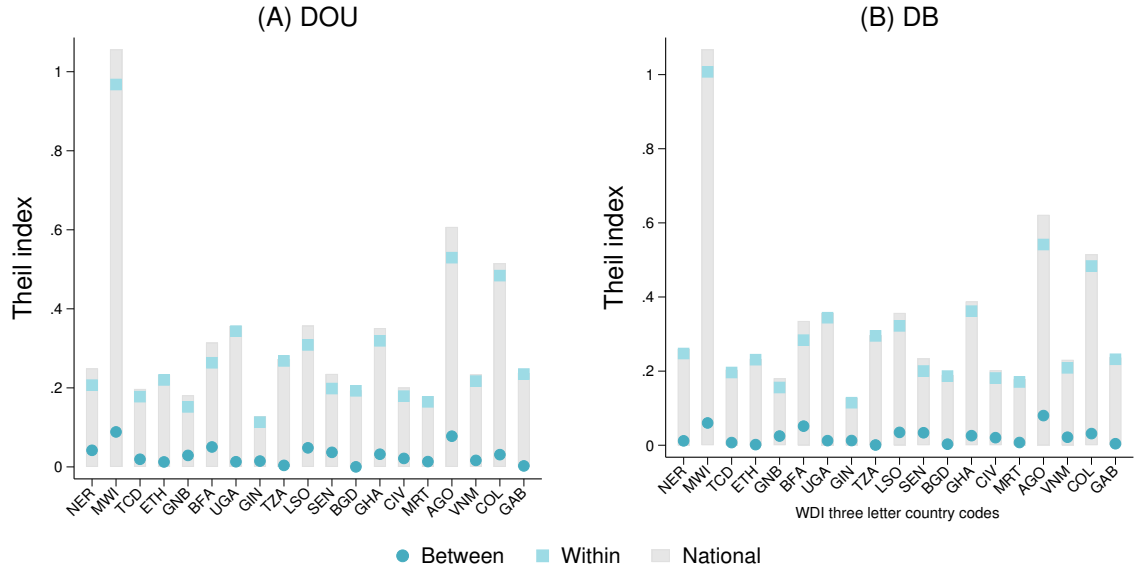
Source: International Urban Poverty Database.
Note: For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure C19: Theil indexes at the national and across urban versus rural areas, sorted by Theil index



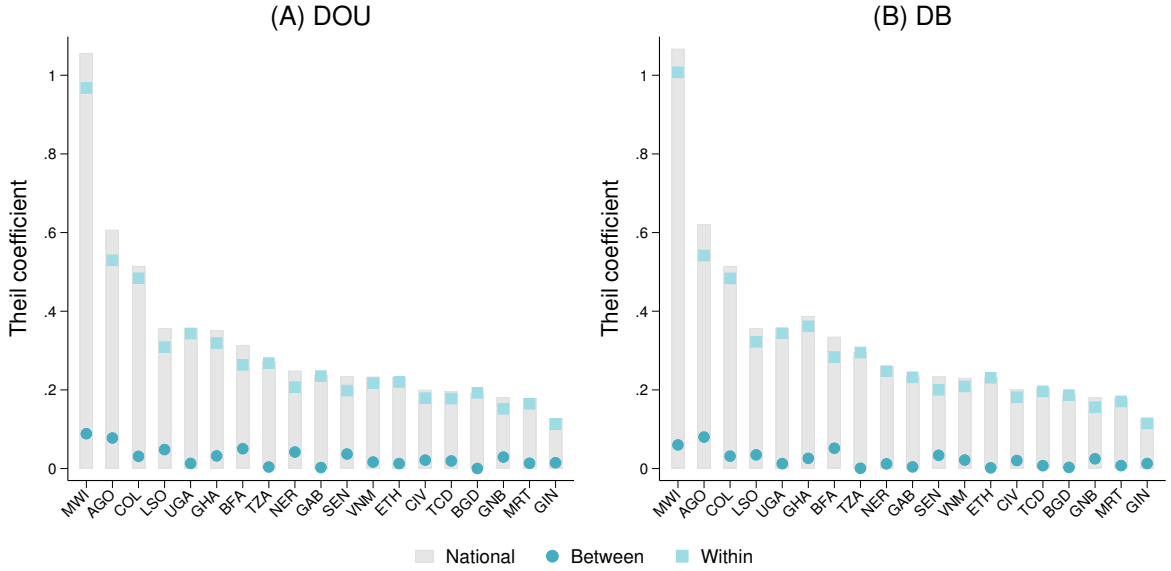
Source: International Urban Poverty Database. Note: For the DOU and DB methods, WorldPop 250m is used. Urban areas include the categories "Urban center" and "Urban cluster" for the DOU method, and the categories "Core" and "Suburb" for the DB method.

Figure C20: Decomposition of Theil coefficients and GDP, sorted by Theil index



Source: International Urban Poverty Database.
Note: Countries are sorted in ascending order of log of GDP per capita, measured in PPP (constant 2017 international $). WorldPop 250m is used for the DOU and DB methods. See Figure C21 for the same chart with countries reordered by the highest to the lowest Theil indexes.

Figure C21: Decomposition of consumption difference between urban and rural areas



Source: International Urban Poverty Database.
Note: Each boxplot shows the distribution of percentage contribution of (1) endowments and (2) returns to the mean differences in the log per capita consumption expenditures between urban and rural areas in 18 countries based on the Oaxaca-Blinder decomposition. The share of interactions is not shown for the sake of presentation. WorldPop 250m is used for the DOU and DB methods.

Table C1: Summary Statistics of pooled household-level data

	N	Mean	Median	SD	Min	Max
Consumption (per day USD in 2017 PPP terms):						
Real per capita consumption expenditures	453,632	5.62	3.56	9.48	0.00	2289.78
Nominal per capita consumption expenditures	454,631	5.35	3.21	10.05	0.00	2521.83
Spatial deflator						
Spatial deflator	453,659	1.00	0.99	0.13	0.76	1.93
Demographic:						
Household size	454,728	5.70	5.00	3.26	1.00	62.00
Age of household head	454,623	43.15	43.00	17.04	0.00	119.00
Household head is male	454,674	0.81	1.00	0.39	0.00	1.00
Marital status (of household head):						
Married	454,664	0.80	1.00	0.40	0.00	1.00
Never married	454,664	0.03	0.00	0.17	0.00	1.00
Living together	454,664	0.05	0.00	0.21	0.00	1.00
Divorced/Separated	454,664	0.04	0.00	0.20	0.00	1.00
Widowed	454,664	0.08	0.00	0.28	0.00	1.00
Education (of household head):						
No education	438,551	0.33	0.00	0.47	0.00	1.00
Primary incomplete	438,551	0.20	0.00	0.40	0.00	1.00
Primary complete	438,551	0.15	0.00	0.36	0.00	1.00
Secondary incomplete	438,551	0.20	0.00	0.40	0.00	1.00
Secondary complete	438,551	0.06	0.00	0.24	0.00	1.00
Post secondary but not university	438,551	0.02	0.00	0.13	0.00	1.00
University incomplete and complete	438,551	0.03	0.00	0.18	0.00	1.00
Can read and write	442,262	0.56	1.00	0.50	0.00	1.00
Employment (of household head):						
Not in labor force	432,935	0.14	0.00	0.34	0.00	1.00
Unemployed	432,935	0.02	0.00	0.14	0.00	1.00
Employed in Agriculture	432,935	0.44	0.00	0.50	0.00	1.00
Employed in Industry	432,935	0.13	0.00	0.33	0.00	1.00
Employed in Services	432,935	0.28	0.00	0.45	0.00	1.00
Access to basic services						
Improved water	454,639	0.80	1.00	0.40	0.00	1.00
Improved sanitation facility	454,637	0.40	0.00	0.49	0.00	1.00
Access to electricity	443,585	0.64	1.00	0.48	0.00	1.00
DOU urban classification:						
Urban center	454,728	0.27	0.00	0.44	0.00	1.00
Urban cluster	454,728	0.33	0.00	0.47	0.00	1.00
Rural	454,728	0.40	0.00	0.49	0.00	1.00
DB urban classification:						
Core	454,728	0.28	0.00	0.45	0.00	1.00
Suburb	454,728	0.21	0.00	0.41	0.00	1.00
Town	454,728	0.13	0.00	0.34	0.00	1.00
Other rural	454,728	0.50	1.00	0.50	0.00	1.00

Source: International Urban Poverty Database.
Note: The statistics above are based on the household-level data pooled for 19 countries. Real per capita consumption expenditures are deflated using a spatial deflator calculated using the WorldPop 250m dataset and the DOU method.

Table C2: Household characteristics across urban versus rural areas

		Official definition		DOU			DB			
	All	Urban	Rural	Urban center	Urban cluster	Rural	Core	Suburb	Town	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Demographic:										
Household size	5.70	5.40	5.84	5.33	5.19	6.42	5.89	5.51	6.69	5.34
Age of household head	43.15	44.50	42.53	45.14	45.09	39.99	43.05	40.34	44.08	44.43
Household head is male	0.81	0.75	0.84	0.77	0.84	0.81	0.76	0.80	0.82	0.86
Education (of household head):										
No education	0.33	0.19	0.39	0.22	0.32	0.43	0.23	0.30	0.47	0.38
Primary complete or incomplete	0.35	0.28	0.38	0.27	0.35	0.40	0.31	0.40	0.33	0.36
Secondary complete or incomplete	0.27	0.40	0.21	0.40	0.29	0.14	0.35	0.26	0.18	0.24
Tertiary complete or incomplete	0.05	0.12	0.02	0.11	0.04	0.02	0.11	0.03	0.03	0.02
Employment (of household head):										
Not in labor force	0.14	0.16	0.13	0.18	0.14	0.11	0.14	0.13	0.12	0.14
Unemployed	0.02	0.03	0.01	0.03	0.01	0.02	0.03	0.01	0.02	0.02
Employed in Agriculture	0.44	0.12	0.59	0.10	0.44	0.69	0.20	0.51	0.63	0.52
Employed in Industry	0.13	0.18	0.10	0.20	0.14	0.06	0.16	0.14	0.07	0.11
Employed in Services	0.28	0.51	0.17	0.49	0.27	0.13	0.47	0.21	0.17	0.21
Access to basic services										
Improved water	0.80	0.90	0.76	0.94	0.89	0.63	0.87	0.76	0.68	0.82
Improved sanitation facility	0.40	0.53	0.34	0.57	0.47	0.21	0.47	0.38	0.26	0.39
Access to electricity	0.64	0.88	0.53	0.90	0.69	0.40	0.77	0.59	0.47	0.62

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods

Table C3: Estimation results of regressions on log expenditures with DOU classifications

	Log of per capita nominal consumption expenditures							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All	All	All	Urban	All	All	All	Urban
Urban center	0.766***	0.527***	0.438***	0.369***	0.613***	0.425***	0.348***	0.295***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.009)	(0.008)	(0.008)	(0.007)
Urban cluster	0.274***	0.154***	0.117***		0.217***	0.115***	0.083***	
	(0.007)	(0.006)	(0.006)		(0.008)	(0.007)	(0.006)	
Spatial deflator					0.746***	0.522***	0.475***	0.599***
					(0.028)	(0.025)	(0.024)	(0.033)
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Education	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Employment	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*	*No*
Adjusted R2	0.632	0.720	0.726	0.653	0.637	0.722	0.728	0.657
Nr. of countries	19	19	19	19	19	19	19	19
Nr. of hh	418586	418586	418586	292538	418586	418586	418586	292538

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors in parentheses. WorldPop 250m is used for the DOU method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Urban center" or "Urban cluster") are included in specifications (4) and (8). The baseline category is "Rural" in all specifications, except (4) and (8), where it is "Urban cluster". Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table C4: Estimation results of regressions on log expenditures with DB classifications

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Core	0.638***	0.430***	0.346***	0.312***	0.503***	0.341***	0.271***	0.243***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.008)	(0.008)	(0.008)
Suburb	0.176***	0.108***	0.076***		0.128***	0.077***	0.051***	
	(0.007)	(0.007)	(0.007)		(0.007)	(0.007)	(0.007)	
Town	0.071***	0.040***	0.033***		0.030***	0.013*	0.009	
	(0.008)	(0.007)	(0.007)		(0.008)	(0.008)	(0.007)	
Spatial deflator					0.763***	0.541***	0.480***	0.617***
					(0.023)	(0.021)	(0.020)	(0.028)
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Demographic	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Education	*No*	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*	*Yes*
Employment	*No*	*No*	*Yes*	*No*	*No*	*No*	*Yes*	*No*
Adjusted R2	0.619	0.713	0.721	0.767	0.626	0.716	0.723	0.770
Nr. of countries	19	19	19	19	19	19	19	19
Nr. of hh	419519	419519	419519	267397	418633	418633	418633	267397

Source: International Urban Poverty Database.
Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. WorldPop 250m is used for the DB method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Core" or "Suburb") are included in specifications (4) and (8). The baseline category is "Other rural" in all specifications, except (4) and (8), where it is "Suburb". Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table C5: Estimation results of regressions on household poverty status

	Poverty status (1 = poor, 0 = non-poor)								
	(1) $2.15	(2) $2.15	(3) $2.15	(4) $3.65	(5) $3.65	(6) $3.65	(7) $6.85	(8) $6.85	(9) $6.85
Panel A: DOU									
Urban center	-0.141***	-0.084***	-0.056***	-0.274***	-0.164***	-0.118***	-0.244***	-0.152***	-0.122***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)
Urban cluster	-0.064***	-0.033***	-0.021***	-0.105***	-0.048***	-0.029***	-0.092***	-0.048***	-0.035***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Panel B: DB									
Core	-0.106***	-0.059***	-0.033***	-0.200***	-0.106***	-0.063***	-0.203***	-0.122***	-0.094***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Suburb	-0.014***	0.003	0.013***	-0.059***	-0.027***	-0.011**	-0.068***	-0.043***	-0.033***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Town	0.039***	0.044***	0.047***	0.014***	0.026***	0.030***	-0.022***	-0.011***	-0.009**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Education	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Employment	No	No	Yes	No	No	Yes	No	No	Yes
Panel A Adj.R^2	0.148	0.197	0.202	0.249	0.334	0.342	0.347	0.420	0.425
Panel B Adj.R^2	0.150	0.201	0.207	0.232	0.324	0.334	0.335	0.412	0.418
Nr. of countries	19	19	19	19	19	19	19	19	19
Nr. of hh	419821	419821	419821	419821	419821	419821	419821	419821	419821

Source: International Urban Poverty Database.
Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. WorldPop 250m is used for the DOU and DB method. The dependent variable is a dummy variable taking the value 1 if a household's per capita expenditure expressed in PPP and spatially deflated falls below the poverty line. The baseline category is "Rural" in all specifications in Panel A, and "Other rural" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table C6: Urban and poverty status changes

(A) Original definitions to DOU		**Non-spatially deflated**				**Spatially deflated**			
Poverty status:		Non-poor		Poor		Non-poor		Poor	
DOU:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Official urban definition:									
Non-poor	Urban	88.8	11.2	0.0	0.0	87.8	11.2	0.9	0.0
	Rural	33.6	66.4	0.0	0.0	31.5	65.8	1.0	1.6
Poor	Urban	0.0	0.0	77.3	22.7	4.9	2.5	74.7	17.8
	Rural	0.0	0.0	17.1	82.9	0.1	3.1	17.5	79.3

(B) Original definitions to DB		**Non-spatially deflated**				**Spatially deflated**			
Poverty status:		Non-poor		Poor		Non-poor		Poor	
DOU:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Official urban definition:									
Non-poor	Urban	89.0	4.5	0.0	6.5	93.1	6.5	0.4	0.0
	Rural	46.7	20.0	0.0	33.2	64.6	32.2	2.5	0.7
Poor	Urban	0.0	0.0	91.6	8.4	6.5	1.0	85.9	6.6
	Rural	0.0	0.0	54.7	45.3	1.4	2.3	63.9	32.4

(C) DOU to DB		**Non-spatially deflated**				**Spatially deflated**			
Poverty status:		Non-poor		Poor		Non-poor		Poor	
DB:		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
DOU:									
Non-poor	Urban	90.9	2.6	0.0	6.5	93.1	6.6	0.3	0.0
	Rural	29.4	27.9	0.0	42.7	56.0	41.4	2.0	0.6
Poor	Urban	0.0	0.0	96.6	3.4	6.9	0.3	90.1	2.8
	Rural	0.0	0.0	43.9	56.1	1.1	2.2	58.3	38.5

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line. 18 countries are included. Bangladesh is an outlier and is not included. In Panel (A), welfare is deflated using official spatial deflators. In Panel (B) and (C), welfare is deflated using our updated spatial deflators.

Table C7: Summary statistics by country

	AGO	BFA	BGD	CIV	COL	ETH	GAB	GHA	GIN	GNB
Number of households	11,822	6,651	45,812	11,589	232,160	30,255	7,914	14,009	8,243	5,291
Survey years	2018/19	2018/19	2016	2018/19	2015	2015/16	2017	2016/17	2018/19	2018/19
Lowest geographic unit available	Bairro	PSU	Mauza	PSU	Section	HH	HH	PSU	PSU	PSU
DOU urban classification:										
Urban center	0.49	0.20	0.39	0.27	0.49	0.10	0.63	0.24	0.31	0.28
Urban cluster	0.13	0.12	0.60	0.22	0.11	0.17	0.14	0.24	0.12	0.15
Rural	0.38	0.68	0.02	0.51	0.41	0.74	0.24	0.52	0.57	0.57
DB urban classification:										
Core	0.60	0.34	0.14	0.42	0.53	0.26	0.74	0.27	0.44	0.41
Suburb	0.05	0.08	0.10	0.07	0.06	0.46	0.09	0.16	0.06	0.08
Town	0.19	0.41	0.05	0.41	0.11	0.11	0.11	0.24	0.37	0.29
Other rural	0.35	0.58	0.76	0.51	0.41	0.28	0.17	0.56	0.50	0.52
Consumption (per day USD in 2017 PPP terms):										
Real per capita consumption expenditures	5.67	4.42	4.44	5.11	19.47	3.70	11.83	4.01	4.44	4.10
Nominal per capita consumption expenditures	5.90	4.67	4.47	5.19	19.18	0.99	11.88	4.03	4.49	4.22
Demographic:										
Household size	6.44	8.93	4.68	6.21	3.37	5.76	5.90	5.64	6.26	11.34
Age of household head	42.87	48.63	44.64	44.92	47.89	22.53	44.88	46.97	46.28	49.21
Household head is male	0.74	0.91	0.90	0.84	0.65	0.80	0.71	0.71	0.83	0.83
Marital status (of household head):										
Married	0.10	0.90	0.94	0.78	0.27	0.84	0.27	0.65	0.89	0.80
Never married	0.04	0.02	0.02	0.15	0.10	0.02	0.25	0.06	0.02	0.06
Living together	0.66	0.01	0.00	0.00	0.34	0.00	0.38	0.10	0.00	0.01
Divorced/Separated	0.12	0.01	0.01	0.02	0.19	0.04	0.03	0.09	0.01	0.02
Widowed	0.09	0.06	0.04	0.06	0.09	0.09	0.07	0.10	0.08	0.10
Education (of household head):										
No education	0.16	0.76	0.42	0.50	0.07	0.51	0.19	0.27	0.55	0.40
Primary incomplete	0.30	0.10	0.13	0.19	0.18	0.33	0.09	0.11	0.13	0.28
Primary complete	0.05	0.03	0.12	0.03	0.16	0.05	0.08	0.04	0.00	0.09
Secondary incomplete	0.40	0.08	0.24	0.18	0.16	0.04	0.42	0.41	0.17	0.07
Secondary complete	0.02	0.00	0.04	0.03	0.21	0.02	0.07	0.06	0.02	0.08
Post secondary but not university	0.00	0.00	0.00	0.03	0.10	0.03	0.00	0.07	0.00	0.00
University incomplete and complete	0.06	0.03	0.04	0.05	0.11	0.03	0.16	0.05	0.12	0.07
Can read and write	0.75	0.32	0.54	0.53	0.93	0.46	0.91	0.52	0.40	0.57
Employment (of household head):										
Not in labor force	0.09	0.07	0.17	0.08	0.19	0.08	0.21	0.02	0.06	0.09
Unemployed	0.06	0.00	0.01	0.00	0.04	0.00	0.04	0.02	0.01	0.00
Employed in Agriculture	0.34	0.66	0.32	0.52	0.15	0.72	0.14	0.42	0.41	0.47
Employed in Industry	0.09	0.08	0.18	0.09	0.16	0.05	0.14	0.14	0.15	0.10
Employed in Services	0.42	0.18	0.32	0.31	0.46	0.15	0.48	0.40	0.38	0.34
Access to basic services										
Improved water	0.68	0.81	0.97	0.78	0.98	0.57	0.88	0.59	0.79	0.78
Improved sanitation facility	0.46	0.30	0.46	0.33	0.88	0.04	0.32	0.20	0.29	0.37
Access to electricity	0.47	0.53	0.76	0.80	0.98	0.36	0.91	0.81	0.44	0.58

Source: International Urban Poverty Database.

Note: Real per capita consumption expenditures are deflated using a spatial deflator calculated based on the WorldPop 250m dataset and the DOU method.

Table C7: Summary statistics by country (cont.)

	LSO	MRT	MWI	NER	SEN	TCD	TZA	UGA	VNM
Number of households	4,294	9,341	12,439	6,024	6,843	7,493	9,463	15,572	9,399
Survey years	2017/18	2014	2016/17	2018/19	2018/19	2018/19	2017 – 19	2016/17	2016
Lowest geographic unit available	HH	HH	HH	PSU	PSU	PSU	HH	Parish	Commune
DOU urban classification:									
Urban center	0.16	0.29	0.12	0.12	0.41	0.12	0.21	0.15	0.27
Urban cluster	0.20	0.17	0.17	0.12	0.18	0.16	0.23	0.40	0.45
Rural	0.64	0.54	0.72	0.76	0.41	0.73	0.56	0.45	0.28
DB urban classification:									
Core	0.33	0.43	0.15	0.40	0.53	0.50	0.36	0.27	0.22
Suburb	0.20	0.04	0.24	0.15	0.08	0.13	0.24	0.29	0.36
Town	0.20	0.28	0.06	0.30	0.23	0.14	0.17	0.09	0.03
Other rural	0.47	0.53	0.62	0.45	0.40	0.37	0.40	0.44	0.42
Consumption (per day USD in 2017 PPP terms):									
Real per capita consumption expenditures	4.64	5.71	2.39	2.65	5.56	3.73	3.39	3.52	12.27
Nominal per capita consumption expenditures	4.62	5.74	2.44	2.79	5.82	3.86	3.50	3.54	12.37
Demographic:									
Household size	5.27	7.47	5.19	7.58	12.69	6.88	6.18	5.89	4.45
Age of household head	51.07	49.92	43.12	46.01	53.44	43.96	47.38	43.43	51.10
Household head is male	0.63	0.74	0.75	0.87	0.76	0.81	0.76	0.74	0.78
Marital status (of household head):									
Married	0.58	0.83	0.78	0.93	0.86	0.86	0.75	0.79	0.84
Never married	0.06	0.01	0.01	0.00	0.02	0.01	0.03	0.03	0.02
Living together	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Divorced/Separated	0.05	0.06	0.11	0.02	0.02	0.05	0.07	0.07	0.02
Widowed	0.31	0.09	0.10	0.05	0.11	0.08	0.11	0.10	0.12
Education (of household head):									
No education	0.00	0.75	0.16	0.68	0.55	0.52	0.20	0.13	0.06
Primary incomplete	0.48	0.09	0.55	0.17	0.17	0.21	0.14	0.40	0.16
Primary complete	0.16	0.02	0.06	0.01	0.05	0.03	0.52	0.18	0.25
Secondary incomplete	0.19	0.08	0.12	0.10	0.15	0.18	0.10	0.19	0.31
Secondary complete	0.08	0.02	0.07	0.00	0.01	0.01	0.00	0.02	0.22
Post secondary but not university	0.03	0.00	0.02	0.01	0.01	0.01	0.02	0.05	0.00
University incomplete and complete	0.05	0.04	0.01	0.02	0.06	0.05	0.02	0.03	0.01
Can read and write	0.79	0.61	0.72	0.36	0.47	0.32	0.76	0.72	.
Employment (of household head):									
Not in labor force	0.26	0.20	0.48	0.02	0.17	0.02	0.29	0.08	0.15
Unemployed	0.04	0.17	0.06	0.00	0.00	0.00	0.09	0.01	0.00
Employed in Agriculture	0.24	0.19	0.06	0.66	0.31	0.69	0.36	0.54	0.39
Employed in Industry	0.20	0.07	0.07	0.07	0.12	0.06	0.05	0.09	0.20
Employed in Services	0.26	0.37	0.32	0.25	0.40	0.23	0.21	0.29	0.25
Access to basic services									
Improved water	0.86	0.61	0.87	0.62	0.85	0.66	0.71	0.77	0.93
Improved sanitation facility	0.45	0.51	0.52	0.15	0.63	0.13	0.28	0.22	0.83
Access to electricity	0.41	0.46	0.93	0.21	0.74	0.10	0.56	0.39	0.99

Source: International Urban Poverty Database.

Note: Real per capita consumption expenditures are deflated using a spatial deflator calculated based on the WorldPop 250m dataset and the DOU method.

Table C8: Profile of the poor across urban versus rural areas

		Poor by DOU				Poor by DB				
	All	Urban	Urban center	Urban cluster	Urban Rural	Urban	Core	Suburb	Town	Other Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Demographic:										
Household size	5.70	6.37	6.36	6.37	7.48	7.37	7.39	6.88	7.94	6.49
Age of household head	43.15	42.49	42.79	42.37	40.27	40.53	41.11	36.95	44.21	42.12
Household head is male	0.81	0.81	0.77	0.83	0.81	0.79	0.75	0.80	0.82	0.83
No education	0.33	0.40	0.38	0.41	0.49	0.45	0.39	0.41	0.55	0.47
Primary complete or incomplete	0.35	0.44	0.43	0.44	0.44	0.45	0.46	0.50	0.37	0.43
Secondary complete or incomplete	0.27	0.15	0.18	0.13	0.07	0.10	0.14	0.08	0.08	0.10
Tertiary complete or incomplete	0.05	0.01	0.02	0.01	0.00	0.01	0.02	0.01	0.00	0.00
Employment (of household head):										
Not in labor force	0.14	0.15	0.18	0.14	0.14	0.14	0.14	0.14	0.13	0.15
Unemployed	0.02	0.04	0.07	0.03	0.02	0.03	0.05	0.02	0.02	0.02
Employed in Agriculture	0.44	0.46	0.21	0.57	0.73	0.62	0.46	0.67	0.71	0.62
Employed in Industry	0.13	0.11	0.16	0.08	0.04	0.06	0.09	0.05	0.04	0.07
Employed in Services	0.28	0.24	0.38	0.18	0.07	0.15	0.26	0.11	0.09	0.13
Access to basic services										
Improved water	0.80	0.85	0.91	0.82	0.59	0.66	0.76	0.63	0.61	0.73
Improved sanitation facility	0.40	0.24	0.29	0.22	0.16	0.18	0.23	0.14	0.18	0.22
Access to electricity	0.64	0.44	0.63	0.36	0.20	0.29	0.39	0.24	0.25	0.31

Source: International Urban Poverty Database.
Note: WorldPop 250m is used for the DOU and DB methods. Poverty is measured using the $2.15 poverty line.

Table C9: Estimation results of regressions on log expenditures with control variables: DOU

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Urban center	0.766***	0.527***	0.438***	0.369***	0.613***	0.425***	0.348***	0.295***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.009)	(0.008)	(0.008)	(0.007)
Urban cluster	0.274***	0.154***	0.117***		0.217***	0.115***	0.083***	
	(0.007)	(0.006)	(0.006)		(0.008)	(0.007)	(0.006)	
Spatial deflator					0.746***	0.522***	0.475***	0.599***
					(0.028)	(0.025)	(0.024)	(0.033)
Demographic:								
Household size		−0.082***	−0.081***	−0.075***		−0.081***	−0.080***	−0.074***
		(0.002)	(0.002)	(0.003)		(0.002)	(0.002)	(0.003)
Age of head of hh		0.007***	0.007***	0.007***		0.007***	0.007***	0.007***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Sex of head of hh		−0.054***	−0.039***	−0.085***		−0.050***	−0.036***	−0.082***
		(0.007)	(0.007)	(0.009)		(0.007)	(0.007)	(0.009)
Marital status (of head of hh):								
Never married		0.237***	0.228***	0.200***		0.237***	0.228***	0.203***
		(0.011)	(0.011)	(0.013)		(0.011)	(0.011)	(0.013)
Living together		−0.079***	−0.087***	−0.119***		−0.088***	−0.094***	−0.123***
		(0.014)	(0.014)	(0.019)		(0.014)	(0.014)	(0.019)
Divorced/Separated		−0.013	−0.024*	−0.085***		−0.011	−0.021*	−0.084***
		(0.013)	(0.013)	(0.017)		(0.013)	(0.013)	(0.017)
Widowed		−0.026**	−0.029***	−0.076***		−0.025**	−0.028***	−0.075***
		(0.010)	(0.010)	(0.012)		(0.010)	(0.010)	(0.012)
Education (of head of hh):								
Primary incomplete		0.087***	0.080***	0.077***		0.085***	0.078***	0.077***
		(0.007)	(0.007)	(0.008)		(0.007)	(0.007)	(0.008)
Primary complete		0.235***	0.213***	0.217***		0.230***	0.209***	0.212***
		(0.008)	(0.008)	(0.009)		(0.008)	(0.008)	(0.009)
Secondary incomplete		0.384***	0.346***	0.355***		0.371***	0.336***	0.340***
		(0.007)	(0.007)	(0.007)		(0.007)	(0.007)	(0.007)
Secondary complete		0.657***	0.590***	0.619***		0.645***	0.582***	0.605***
		(0.011)	(0.011)	(0.012)		(0.011)	(0.011)	(0.012)
Post secondary but not university		0.761***	0.671***	0.731***		0.753***	0.667***	0.723***
		(0.015)	(0.015)	(0.019)		(0.015)	(0.015)	(0.018)
University incomplete and complete		0.917***	0.831***	0.866***		0.903***	0.821***	0.850***
		(0.013)	(0.013)	(0.013)		(0.013)	(0.013)	(0.013)
Employment (of head of hh):								
Unemployed			0.032**				0.034**	
			(0.016)				(0.016)	
Not in labor force			0.130***				0.126***	
			(0.008)				(0.008)	
Employed in Industry			0.159***				0.149***	
			(0.007)				(0.007)	
Employed in Services			0.232***				0.225***	
			(0.006)				(0.006)	
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Adjusted R2	0.632	0.720	0.726	0.653	0.637	0.722	0.728	0.657
Nr. of countries	19	19	19	19	19	19	19	19
Nr. of hh	418586	418586	418586	292538	418586	418586	418586	292538

Source: International Urban Poverty Database.

Note: *** p < 0.01, ** p < 0.05, *** p < 0.1. Robust standard errors in parentheses. WorldPop 250m is used for the DOU method. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Urban center" or "Urban cluster") are included in specifications (4) and (8). The baseline category is "Rural" in all specifications, except (4) and (8), where it is "Urban cluster". Baseline categories for the control variables are the following: "Married" for marital status of household head, "No education" for education of household head, and "Employed in Agriculture" for employment of household head. Robust standard errors are in parentheses. Observations are weighted using population weights.

Table C10: Estimation results of regressions on log expenditures with control variables: DB

	Log of per capita nominal consumption expenditures							
	(1) All	(2) All	(3) All	(4) Urban	(5) All	(6) All	(7) All	(8) Urban
Core	0.643***	0.436***	0.351***	0.312***	0.503***	0.341***	0.271***	0.243***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.009)	(0.008)	(0.008)	(0.008)
Suburb	0.180***	0.112***	0.080***		0.128***	0.077***	0.051***	
	(0.007)	(0.007)	(0.007)		(0.007)	(0.007)	(0.007)	
Town	0.075***	0.044***	0.036***		0.030***	0.013*	0.009	
	(0.008)	(0.007)	(0.007)		(0.008)	(0.008)	(0.007)	
Spatial deflator					0.763***	0.541***	0.480***	0.617***
					(0.023)	(0.021)	(0.020)	(0.028)
Demographic:								
Household size		−0.082***	−0.081***	−0.090***		−0.082***	−0.081***	−0.090***
		(0.002)	(0.002)	(0.003)		(0.002)	(0.002)	(0.003)
Age of head of hh		0.007***	0.007***	0.007***		0.007***	0.007***	0.007***
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Sex of head of hh		−0.064***	−0.044***	−0.058***		−0.059***	−0.039***	−0.056***
		(0.007)	(0.007)	(0.010)		(0.007)	(0.007)	(0.010)
Marital status (of head of hh):								
Never married		0.248***	0.234***	0.268***		0.246***	0.233***	0.262***
		(0.011)	(0.011)	(0.015)		(0.011)	(0.011)	(0.015)
Living together		−0.072***	−0.081***	−0.078***		−0.083***	−0.090***	−0.088***
		(0.015)	(0.015)	(0.020)		(0.015)	(0.015)	(0.020)
Divorced/Separated		−0.012	−0.022*	−0.011		−0.008	−0.018	−0.011
		(0.013)	(0.013)	(0.017)		(0.013)	(0.013)	(0.017)
Widowed		−0.024**	−0.028***	0.006		−0.022**	−0.027**	0.002
		(0.011)	(0.010)	(0.014)		(0.010)	(0.010)	(0.013)
Education (of head of hh):								
Primary incomplete		0.095***	0.085***	0.116***		0.093***	0.084***	0.109***
		(0.007)	(0.007)	(0.010)		(0.007)	(0.007)	(0.010)
Primary complete		0.252***	0.223***	0.299***		0.246***	0.220***	0.285***
		(0.008)	(0.008)	(0.013)		(0.008)	(0.008)	(0.013)
Secondary incomplete		0.408***	0.361***	0.456***		0.394***	0.351***	0.428***
		(0.007)	(0.007)	(0.010)		(0.007)	(0.007)	(0.010)
Secondary complete		0.689***	0.609***	0.710***		0.674***	0.598***	0.686***
		(0.011)	(0.011)	(0.015)		(0.011)	(0.011)	(0.015)
Post secondary but not university		0.794***	0.687***	0.831***		0.783***	0.681***	0.807***
		(0.016)	(0.016)	(0.020)		(0.016)	(0.016)	(0.020)
University incomplete and complete		0.955***	0.854***	1.023***		0.935***	0.839***	0.990***
		(0.013)	(0.013)	(0.015)		(0.013)	(0.013)	(0.015)
Employment (of head of hh):								
Unemployed			0.065***				0.065***	
			(0.016)				(0.016)	
Not in labor force			0.161***				0.153***	
			(0.008)				(0.008)	
Employed in Industry			0.188***				0.174***	
			(0.007)				(0.007)	
Employed in Services			0.260***				0.250***	
			(0.006)				(0.006)	
Country FE	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Adjusted R2	0.619	0.713	0.721	0.767	0.626	0.716	0.723	0.770
Nr. of countries	19	19	19	19	19	19	19	19
Nr. of hh	418633	418633	418633	267397	418633	418633	418633	267397

Source: International Urban Poverty Database.

Note: *** p < 0.01, ** p < 0.05, *** p < 0.1 . Robust standard errors are in parentheses. WorldPop 250m is used for the DB methods. The dependent variable is the log of per capita consumption expenditures, expressed in PPP and not spatially deflated. Only urban households ("Core" or "Suburb") are included in specifications (4) and (8). The baseline category is "Other rural" in all specifications, except (4) and (8), where it is "Suburb". Baseline categories are the following: "Married" for the marital status of the household head, "No education" for the education of the household head, and "Employed in Agriculture" for the employment of the household head. Observations are weighted using population weights.

Table C11: Access to basic amenities and location

	Water			Sanitation			Electricity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: DOU									
Urban center	0.219***	0.200***	0.167***	0.236***	0.161***	0.110***	0.369***	0.293***	0.216***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Urban cluster	0.159***	0.152***	0.136***	0.144***	0.118***	0.097***	0.149***	0.122***	0.087***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Log of real exp.		0.035***	0.021***		0.138***	0.125***		0.137***	0.113***
		(0.002)	(0.003)		(0.002)	(0.003)		(0.002)	(0.003)
Panel B: DB									
Core	0.156***	0.134***	0.106***	0.165***	0.099***	0.062***	0.261***	0.187***	0.124***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.005)
Suburb	0.100***	0.087***	0.067***	0.148***	0.110***	0.089***	0.157***	0.116***	0.071***
	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)
Town	0.047***	0.041***	0.036***	0.064***	0.046***	0.037***	0.058***	0.037***	0.024***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Log of real exp.		0.050***	0.027***		0.149***	0.126***		0.166***	0.126***
		(0.002)	(0.003)		(0.002)	(0.003)		(0.002)	(0.002)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	No	Yes	No	No	Yes	No	No	Yes
Education	No	No	Yes	No	No	Yes	No	No	Yes
Employment	No	No	Yes	No	No	Yes	No	No	Yes
Panel A Adj.R^2	0.194	0.197	0.203	0.295	0.325	0.362	0.326	0.357	0.388
Panel B Adj.R^2	0.170	0.177	0.189	0.282	0.318	0.359	0.280	0.330	0.374
Nr. of countries	19	19	19	19	19	19	19	19	19
Nr. of hh	418622	418622	418622	418619	418619	418619	415296	415296	415296

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. WorldPop 250m is used for the DOU and DB method. The dependent variable is a dummy variable taking the value 1 if a household has access to a respective amenity. The baseline category is "Urban center" in all specifications in Panel A, and "Cores" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.

Table C12: Employment shares across locations

	Agriculture				Services			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: DOU								
Urban center	-0.614***	-0.605***	-0.528***	-0.182***	0.465***	0.456***	0.375***	0.131***
	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)
Urban cluster	-0.245***	-0.242***	-0.207***	-0.070***	0.198***	0.194***	0.159***	0.055***
	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)
Panel B: DB								
Core	-0.436***	-0.427***	-0.355***	-0.118***	0.330***	0.323***	0.252***	0.079***
	(0.004)	(0.004)	(0.004)	(0.003)	(0.006)	(0.006)	(0.006)	(0.004)
Suburb	-0.308***	-0.302***	-0.254***	-0.080***	0.161***	0.158***	0.111***	0.024***
	(0.006)	(0.007)	(0.007)	(0.004)	(0.007)	(0.007)	(0.007)	(0.004)
Town	-0.096***	-0.094***	-0.075***	-0.027***	0.061***	0.059***	0.042***	0.012***
	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.003)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Education	No	No	Yes	Yes	No	No	Yes	Yes
Employment	No	No	No	Yes	No	No	No	Yes
Panel A Adj.R^2	0.342	0.350	0.389	0.791	0.204	0.209	0.260	0.731
Panel B Adj.R^2	0.221	0.234	0.305	0.782	0.120	0.129	0.209	0.726
Nr. of countries	19	19	19	19	19	19	19	19
Nr. of hh	372027	372027	372027	372027	372027	372027	372027	372027

Source: International Urban Poverty Database.
Note: *** $p < 0.01$, ** $p < 0.05$, *** $p < 0.1$. Robust standard errors are in parentheses. WorldPop 250m is used for the DOU and DB method. The dependent variable is a share of household workers employed in a respective sector. The baseline category is "Urban center" in all specifications in Panel A, and "Cores" in all specifications in Panel B. Demographic control variables include household size and household head's age, sex, and marital status. Education is a categorical control variable that summarizes the education of the household head in seven categories. Employment is a categorical control variable that summarizes the household head's labor status and employment sector.