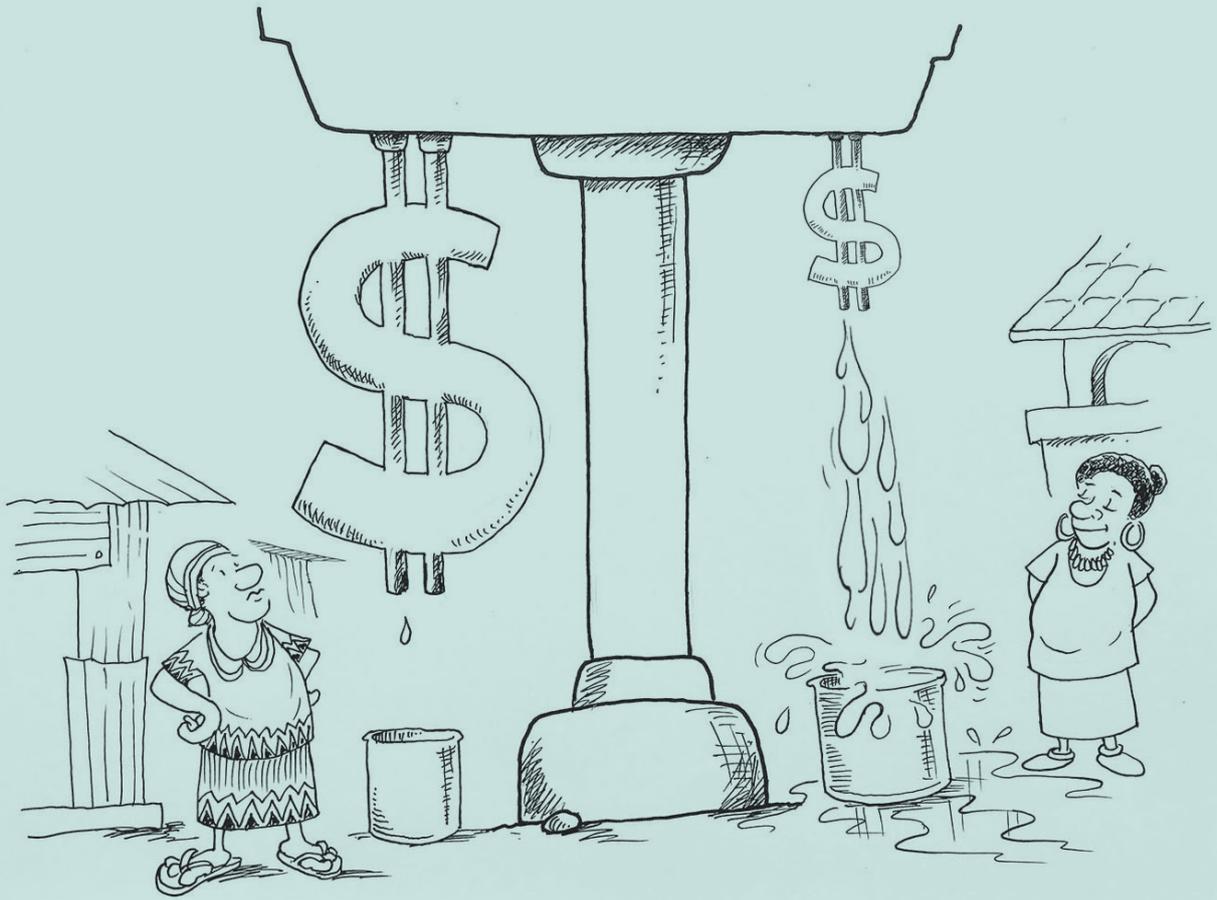




Measuring the Poverty Penalty

Contrary to popular belief, the urban poor are often willing and able to pay for basic services. In fact, informal settlement residents often encounter a poverty penalty, paying more for lower quality water, sanitation, electricity, housing and other goods and services than residents in nearby formal neighborhoods. Measuring the poverty penalty, and associated service provision and revenue opportunity for local utilities, can provide compelling evidence to persuade local decision-makers to upgrade basic infrastructure and services in informal settlements.



Who

Most useful for:

- Local Champions
- Academia
- Local Governments
- Federation-support NGOs
- NGOs

Also useful for:

- Funders

What

Huge disparities in access to, and quality of, basic services (housing, water, sanitation, electricity, cooking fuel, and waste collection) often exist between formal and informal areas of cities. Public utilities and other service providers typically do not invest in infrastructure to serve residents on land with insecure tenure (whether publicly or privately owned).

Small-scale, informal service providers fill this unmet demand by selling basic services to residents. Because they are essential services, residents are willing — and often prove able — to pay inflated prices. While some informal providers are residents and operate as micro-businesses, others inevitably band together — resident and non-resident alike — to form local cartels that exploit the lack of governance to fix prices. This is the source of the poverty penalty the urban poor are forced to pay to secure basic services. It is also the source of indirect costs to their safety, time and dignity.

A **price penalty** is when a household pays an above-average price per unit for a good or service.

A **quality penalty** is when a household pays the same price for an inferior good or service.

A **poverty penalty** is when the poor must accept both a price and a quality penalty for a good or service.

Informal service providers are typically unregulated and often operate illegally. This makes it difficult for residents to identify them or to demand lower prices and higher quality and safer services. Most providers finance their businesses from personal savings as well as family and other informal savings groups. Because of the inflated prices they can charge due to high demand and low supply, they are often able to recover their capital outlay in a relatively short period of time. At the same time, they often create barriers to entry for other would-be informal service providers; these include intimidating residents who complain or attempt to access formal services and damaging services infrastructure that would undermine their businesses.

Despite these detrimental practices, they provide essential services. They do this by overcoming the operational cost barriers to scaling down to 'micro-consumers' that many formal service providers encounter. However, because there are typically many autonomous providers, it is often challenging to tax their revenues.

The gap in service provision, the potential revenue and residents' willingness and ability to pay presents a compelling opportunity for public utilities and other formal service providers. To measure the poverty penalty, first collect or source households' expenditures data in your settlement. Also procure price data for the same services from nearby formal neighborhoods. Using the average cost per unit (e.g. Ksh X per Y liters of water), compare the price differences between formal and informal for different services. See [How](#) for more.

Beyond its value for advocacy, this method also supports situational analyses of existing conditions for associated sectors. In turn, other metrics from situational analyses can provide context and framing for poverty penalty findings.

Why

While the fact that the urban poor pay more for accessing basic goods and services is well documented, it is not widely known by local policymakers and elected leaders. Measuring the poverty penalty challenges the commonly held belief that informal settlement residents pay relatively little for inferior services. Services are actually quite expensive, demonstrating residents ability and willingness to pay. This, in turn, dispels the myth that government must create special budgets to finance services in informal settlements. Instead, access for the poor and operations for the provider are the main challenges.

The quality, availability and accessibility of basic services provided by small-scale, informal service providers and cartels is typically far below commonly accepted standards. Residents must tolerate exploitative rents, open sewers, ubiquitous garbage, unsafe drinking water, dangerous, unstable electricity connections and noxious fumes from unclean cooking fuels.

This penalty contributes to poor public health conditions and even environmental degradation. It also impacts residents' ability to meet individual and community needs and their overall wellbeing and dignity. For the most vulnerable residents, it can create an intergenerational poverty trap. Unaddressed, other policy measures and plans for improvements in informal settlements will likely fall short.

The fact that residents can and will pay for services, even at a higher cost, presents an important opportunity for public utilities and other formal service providers to sustainably meet their obligations to provide services while, at the same time, improving public health conditions and expanding their revenue base. Additionally, small-scale informal service providers represent a vibrant but untaxed economy that could be leveraged to fund short- and mid-term improvements to infrastructure.

The service provision and revenue opportunity can also help make the case for improving land tenure. Improved tenure security supports improved access to better services at a lower price, for both consumers and suppliers. Finally, the poverty penalty likely indicates residents' willingness to engage in co-planning efforts to improve services.

The poverty penalty clearly demonstrates the urgent needs of residents and provides a compelling message to garner the attention of policymakers, utilities and even the media. It will also likely capture the interest of local elected representatives as informal settlements often represent a significant political constituency.



“ The issue of the poverty penalty when it was brought to us [in the city government] – of course we knew that people in the settlements pay; they do not have formal supply. But when the issue of the poverty penalty was brought out, it actually made us think of how selfish it actually was for people in the formal settlement areas to pay much less than what the people in the informal settlements were paying because it was basically penalizing people for being poor. I think this also prompted us to really see how we can start thinking about equity; because this was actually a big issue of inequality, in terms of infrastructure and supply of other services. ”

Marion Rono Deputy Director of Housing and Urban Renewal, Nairobi Metropolitan Services

Personal communication, 29 July 2022.

Maintaining infrastructure and collecting revenues will still present a significant operational challenge for utilities. To confront this challenge, explore alternative service delivery models to strategically and pragmatically overcome last mile service provision challenges. These models can help eliminate predatory informal service practices while at the same time recognizing how informal service providers can contribute their local expertise. This can also support the local economy and maintain livelihood opportunities for small-scale providers.

Where

The insecurity of land tenure and lack of formal service provision that create a poverty penalty will be common in many, if not most, urban informal settlements. Therefore, this method will likely prove relevant and valuable where you work.

National and local laws may or may not require local utilities to keep and publish price data. If data is not available or difficult to procure, it may make price comparisons between informal and formal services more difficult. You can overcome this by surveying residents in formal neighborhoods as well (though this will likely prove costly).

Like other metrics, collecting data and doing analyses citywide will further strengthen your case and support your advocacy efforts.

When

Providing evidence of the existence and magnitude of a poverty penalty is most valuable during the advocacy phase. It can provide potent evidence to persuade local governments to commit to an upgrading initiative. The period before elections can be a particularly fruitful moment to present evidence of a poverty penalty to political candidates and to ask for their commitment to supporting planning and investment in basic services once elected.

How

Procure Data on Household Expenditures Within the Settlement

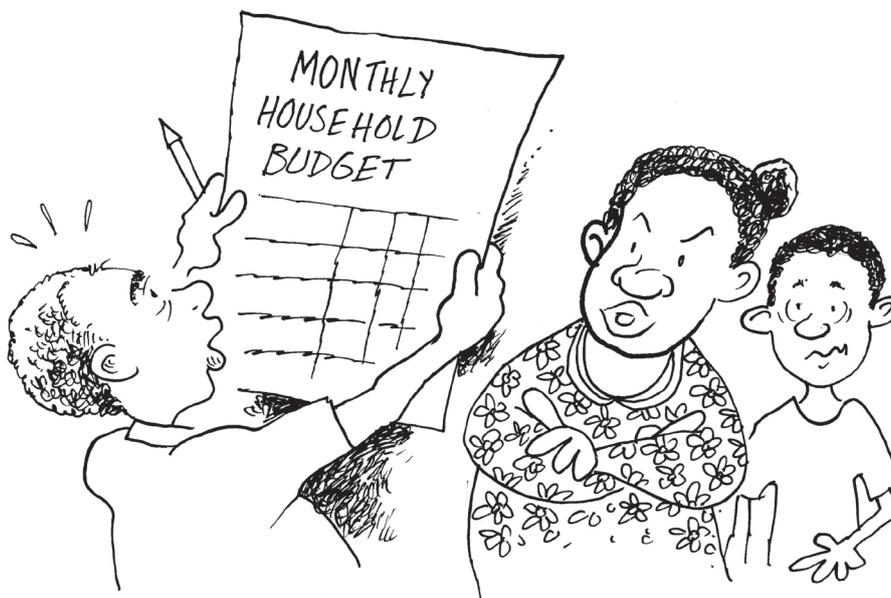
If good data already exists, use that to create a typical monthly household budget for the settlement. This will allow you to estimate:

- the price differences per unit with formal neighborhoods; and
- the overall size of the informal economy for basic services.

It is likely that no good data will already exist. You will therefore have to conduct a survey on household expenditures. In the survey, collect data on the **amount**, **quantity** and **frequency** for each service (for instance, Ksh 20 for a 20-liter jerry can of water bought daily; Ksh 2600 in rent for a 10 square meter room monthly). Each data point is important for calculating costs and comparing them:

- **Amount:** Money spent for the good or service by the household (for a given quantity and frequency).
- **Quantity:** How much of the good or service that the household consumes for the amount spent; this allows you to normalize costs to per unit prices so that you can then compare costs in the settlement to nearby formal neighborhoods.
- **Frequency:** How often the household purchases the good or service. This allows you to create a monthly household budget so that you can estimate the overall size of the informal economy for basic services (as well as compare monthly costs with households in formal neighborhoods).

These data could be collected during [Settlement Profiling, Household Numbering and Enumeration](#), or in a separate effort. See [Example Materials](#) for more.



Procure Data on Prices From Nearby Formal Neighborhoods

Many public utilities and other service providers are required to publish their fees and use data for public use. Source these data however you can, from utilities' websites or by talking to staff. For housing costs, interview reputable real estate agents about typical rent prices.

Determining cost per unit could be as simple as finding the published price. However, keep in mind that some utilities use tiered pricing systems. If possible, you could also analyze any publicly available data on household expenditures to find average prices per unit consumed.

Estimate Average Prices Per Unit

For the formal neighborhoods, you may already have the price per unit. For the informal settlement, you will likely have to estimate this number yourself for each service. To do this simply and accurately,* you need to compare prices for the same/similar quantity of the good or service. To achieve this, you may need to adjust the household expenditures data.

To adjust expenditure numbers:

- 1. Identify atypical instances:** Identify all the households where costs were reported for an atypical quantity (e.g. if a survey respondent reported his rent for a 15 square meter room when the typical room size is 10 square meters).
- 2. Adjust atypical instances:** For each atypical instance, adjust the price by calculating the cost per unit then multiplying the cost per unit by the typical quantity (e.g. the respondent said his rent for a 15 square meter room is Ksh 3400, so divide 3400 by 15 to get 226.66. Then multiply 226.66 by 10 to get Ksh 2266).

* You cannot take an average of averages, so you cannot simply find the average price and the average quantity and then divide the average price by the average quantity (hence the need to adjust atypical expenditure numbers).

Compare Informal vs Formal Prices Per Unit to Estimate Price Penalties

Once you have the average prices per unit for both informal and formal, compare the two. This yields easy-to-understand and often compelling statistics that clearly demonstrate price penalties paid by informal settlement residents for the same or poorer quality services. You can use these numbers in your reports, presentations and conversations for advocacy efforts.

Use These Two Formulas

Percent difference

$$\frac{|a - b|}{(a + b) \div 2} \times 100$$

Where **a** stands for the informal price per unit and **b** for the formal price per unit. Divide the absolute value of **a** minus **b** by half of **a** plus **b**. Then multiply by 100 to get the percent difference.

Alternatively, you can just search the web for “percent difference calculator” and let any of the freely available calculators do the math for you.

Number of times greater

$$a \div b$$

Where **a** is the larger number and **b** the smaller number. Divide **a** by **b** to get the number of times greater.

Examples of Price Penalties for Different Services

Service	Average price per unit		Difference	
	Informal	Formal	Percent	Times greater
Housing	Ksh 26.43 per ft ²	Ksh 21.01 per ft ²	23%	1.26x
Water	Ksh 150 per m ³	Ksh 55 per m ³	93%	2.7x
+ another service				

Substantiate the Poverty Penalty

This method provides information to estimate the price penalty. To substantiate a poverty penalty, you also need to provide evidence of a quality penalty (when a household pays the same price for an inferior good or service). While the inferiority of services might be widely accepted and be self-evident to anyone living in or visiting the settlement, you should still provide examples of the quality penalty to put the price penalty in context. Draw from other research in the settlement about living conditions or work with residents to provide testimonies and photos.

Estimate the Size of the Informal Economy for Services

In addition to the price penalties for services, also try to estimate the total size of the informal economy for services. This figure will help policymakers and formal utility providers see the opportunity to sustainably meet their obligations to provide services while, at the same time, improving public health conditions and expanding their revenue base. Additionally, small-scale informal service



providers represent a vibrant but untaxed economy that could be leveraged to fund short- and mid-term improvements to infrastructure.

The total size of the informal economy is simply the total expenditures for all residents for rent and basic services. You should estimate the size for all services you have data for. Calculate it by multiplying the estimated total number of households in the settlement by the average monthly expenditure for each service. Then, add those numbers together.

Housing	<u>Ksh 2,643 per month</u>	x	101,000 households	=	Ksh 276 million economy per month
Water	Ksh 90 per month				
+ another service					

Considerations

[Does a poverty penalty exist in our city?](#)

Most likely, yes. But, policymakers and formal service providers likely do not know about it and will need to see evidence of it to believe it. They may assume that because informal settlement residents are poor, they pay less (for low-quality services) and that extending formal service provision to them will not be sustainable. Use this method to demonstrate that the opposite is true and that there is a big opportunity for them to provide services, improve public health, and expand their revenue base.

[Will providing evidence of a poverty penalty be sufficient to persuade our local government to upgrade services in our settlement?](#)

It may not. While evidence of a poverty penalty often offers a compelling, clear reason to upgrade services, do not limit your research and advocacy to it alone. Despite being a potent example, the poverty penalty is just one among many challenges that demonstrate the urgent need for upgrading. For example, evidence of disease prevalence (e.g. cholera) and the risk of outbreaks spreading across the city when residents go from their homes to jobs in other areas. While there are many reasons to upgrade an informal settlement, not all of them will capture the same level of attention or will build the political will needed to overcome institutional inertia and entrenched systems of inequality and patronage.

Look for evidence that will:

- demonstrate the interdependence between informal settlements and the rest of the city;
- substantiate the magnitude of need while also demonstrating opportunities to improve conditions to meet institutional obligations and international commitments; and
- play to the political interests of local and even national decision makers.

Challenges

Persuading Policymakers

Don't rely on evidence of the poverty penalty alone. Without access to local government leaders who are positioned to champion an upgrading initiative, the poverty penalty likely won't be enough. Rely on relationships of the research team and other partners to have key conversations with decision makers. Also seek attention on the research findings from local media outlets. This can raise the profile of advocacy efforts and put pressure on local politicians to pay attention and act. Finally, if possible publish your research in academic fora; this can lend the evidence additional legitimacy as well as longevity and therefore greater replicability.

Last Mile Service Provision

Evidence of the poverty penalty alone will not overcome difficult last mile service provision challenges. In many informal settlements, the gap in service provision is filled by small-scale, informal service providers. Extending basic infrastructure like water mains and trunk sewer lines into settlements will not resolve last mile challenges alone. Predatory informal service practices will still prevail and the environment itself will still prove challenging for maintaining infrastructure without local support.

To pragmatically overcome last mile service provision challenges, explore alternative service delivery models. These models can help eliminate predatory informal service practices while at the same time recognizing how informal service providers can contribute their local expertise. This can also support the local economy and maintain livelihood opportunities for small-scale providers.

Examples from the Field

Mukuru, Nairobi (Kenya)

In 2016, building on the momentum for devolution sparked by Kenya's new Constitution and years of community mobilization by the Muungano Alliance, the residents of Mukuru and their university partners presented compelling evidence on a poverty penalty to local government and political leaders, debunking the belief that informal settlement residents were too poor to pay for basic services.

Starting in 2013, an action research team comprised of residents, urban poor federation leaders, local civil society organizations, federation-support NGOs, and local universities conducted research on living conditions and land tenure, among other topics. This included a survey that assessed the provision of, access to, and control over basic services for residents in Mukuru. These data formed the basis for measuring the poverty penalty in Mukuru. For example, they found that water is sold by informal service providers using fragile pipes that break easily, resulting in water

contamination that causes frequent disease outbreaks. Moreover, residents suffered a poverty penalty, paying 170 percent more for lower-quality service than the rest of the city.



“ Action research [supported by IDRC] had revealed significant shelter deficits and predatory informal service provision: Mukuru residents, with no other option, paid far more per unit for lower-quality shelter and services than residents in nearby formal estates – nearly four times more for water, twice as much for electricity and 20 percent more for rent. Despite these high costs, there was a thriving informal economy estimated at 59 million US dollars annually, demonstrating that residents could pay for service delivery, a fact that garnered the attention of policymakers and the media. For public utilities, it demonstrated that they could provide services sustainably and at the same time improve public health conditions in Mukuru. It also captured the interest of local representatives as Mukuru represented a significant political constituency. ”

Jane Weru Executive Director, Akiba Mashinani Trust

Personal communication, 2 August 2022.

Because Mukuru was a significant political constituency, the advocacy team lobbied during the lead up to the elections for the declaration of a Special Planning Area (SPA), seeking a political commitment from the Nairobi city government to intervene in the settlements. They relied on evidence of the poverty penalty paid by Mukuru residents for essential services. These efforts secured crucial buy-in from the city government. Without these political champions, the SPA process would have been severely limited in its scope and impact or never happened at all.

Materials

1. Household expenditures survey (see [Example Materials](#)).
2. Tabular price datasets for rent and services like water, sanitation and electricity.
 - a. In target informal settlement.
 - b. In adjacent formal neighborhoods.
3. Computer with spreadsheet software.

Example Materials

[1] HOUSEHOLD EXPENDITURES SURVEY		Form last updated Sep 2022	
1	Data collector name	<i>Patrick Njoroge</i>	
2	Data collector contact	<i>075600091</i>	
3	Date	<i>13 October 2022</i>	
A. Location Information			
A1	Settlement name	<i>Mukuru Kwa Njenga (MN)</i>	
A2	Area name	<i>Riara (R)</i>	
A3	Block name (if applicable)	<i>Block A (A)</i>	
A4	Structure number	<i>001</i>	
A5	Unit number	<i>A</i>	
A6	Complete unit code	<i>MN/R/A/001-A</i>	
B. Respondent Information			
B1	Respondent name	<i>Eddy Otieno</i>	
B2	Respondent ID number	<i>2790598</i>	
B3	Respondent gender	(a) Female (b) Male (c) Other	
B4	Respondent age	<i>27</i>	
B5	Head of household?	(a) Yes (b) No	
C. Household Expenditures on Services (Ksh)			
Service	Amount	Quantity	Frequency
C1 Rent	<i>2000</i>	<i>10 square foot room</i>	<i>Monthly</i>
C2 Water	<i>5</i>	<i>20 liter jerry can</i>	<i>Daily</i>
C3 Toilet/Sanitation	<i>30</i>	-	<i>Daily</i>
C4 Electricity	<i>500</i>	-	<i>Monthly</i>
C5 Cooking fuel	<i>100</i>	<i>1 liter of kerosene or bucket of charcoal</i>	<i>Daily</i>
C6 Waste collection	-	-	-
C7 Health services	<i>350</i>	-	<i>Monthly</i>
C8 Medication	<i>300</i>	-	<i>Monthly</i>
C9 Education services	<i>1000</i>	<i>School fees for one student</i>	<i>Monthly</i>

Related Components

Methods

- [Settlement Profiling](#)
- [Household Numbering and Enumeration](#)

Sources

Email correspondence with Mary Mutinda (October 2022)

Mutinda, M., Mwau, B., Makau, J., & Sverdlik, A. (2020). [Rethinking slum upgrading in light of Nairobi's poverty penalty](#). Slum Dwellers International - Kenya.

Mutinda, M., & Otieno, S. (2016). [Unlocking Financing for Slum Redevelopment: The Case of Mukuru](#). *Africa Policy Journal*, 11(44).

Muongano wa Wanavijiji/Akiba Mashinani Trust (2020). [Unlocking the Poverty Penalty and Upscaling the Respect for Rights in Kenya's Informal Settlements](#). International Development Research Centre.

Housing, Infrastructure and Commerce consortium (2022, July 29). [Focus group interview by B. Hicks]. Mukuru SPA documentation 2022, Gracehouse Resort, Nairobi, Kenya.

Weru, J. (2022, August 2). On-camera interview by B. Hicks. Mukuru SPA documentation 2022, Akiba Mashinani Trust office, Nairobi, Kenya.

Additional resources

For more on how the poverty penalty can marginalize the poor in markets for basic goods and services, and different strategies for addressing it, see:

Mendoza, R. U. (2011). [Why do the poor pay more? Exploring the poverty penalty concept](#). *Journal of International Development*, 23(1), 1–28.