

Lighting up tax revenue role of electricity bi

HOW can Bangladesh increase its tax revenue? This question frequently appears in media discussions and is also a recurring topic in conversations with my university students. Taxes are the primary source of government revenue, used to finance public investments in human capital, infrastructure, and social safety nets, among other things. Currently, Bangladesh's tax-to-GDP ratio is below 10 per cent, which is significantly lower than the nearly 18 per cent average for other low-middle-income countries.

Economic growth typically expands the tax base, which enables governments to collect more tax revenue. However, this positive correlation between economic growth and tax collection assumes that the government has the capacity to identify taxpayers, determine their tax liabilities, and effectively collect these payments.

Of the more than 10 million registered Taxpayer Identification Number (TIN) holders in Bangladesh, only about a one-third files tax returns. Many individuals obtain TINs for non-income-related services such as land transactions, bank savings, or loans. This inconsistency between the higher number of TIN holders and lower tax filing is due to the large informal sector, which primarily relies on cash transactions. According to the 2022 Bangladesh Bureau of Statistics labour force survey, 85 per cent of the 70 million employed workers are in the informal sector. However, the informal sector does not consist solely of low-income individuals; it includes many people with taxable incomes who remain outside the scope of direct taxation.

An innovative approach to identifying potential taxpayers and determining their income is by utilising electricity consumption data, which often correlates strongly with income levels. Electricity consumption is a reliable indicator of a household's economic status. Higher-income households tend to consume more electricity due to larger living spaces, more electrical appliances, and greater use of energy-intensive amenities such as air conditioning. In contrast, lower-income households typically consume less electricity. The National Board of Revenue (NBR) can estimate household income levels based on electricity consumption patterns.

The process involves several steps. First, the NBR would collect electricity consumption data from utility companies, including monthly consumption levels and corresponding bills for households across various regions. Next, the NBR would establish consumption thresholds for different income brackets. For example, households consuming above a certain number of kilowatt-hours (kWh) per month could be categorised as high-income, while those below a certain

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threshold could be considered low-income.

Based on household income and expenditure surveys, the NBR can determine the average percentage of income that households spend on electricity. This percentage will vary based on factors such as urban or rural location, household size, and local electricity tariffs. A formula for estimating income can then be developed. For instance, if households typically spend 5 per cent of their income on electricity and a household's monthly electricity bill is Tk 5,000, the estimated monthly income for that household would be Tk 100,000.

However, one critical issue is that electricity tariffs in Bangladesh are subsidised. In recent years, the government has been increasing tariffs in phases, which means that electricity bills may rise without a corresponding increase in household income. This factor complicates the direct correlation between electricity consumption and income levels. To account for this, the NBR could adjust their income estimation formula to consider the effects of tariff subsidies and phased increases. For instance, if a significant portion of the bill increase is due to tariff hikes

rather than increased consumption, the NBR would need to factor in the new tariff rates and adjust the income estimation accordingly. By separating the portion of the bill attributable to increased consumption from that due to tariff hikes, the NBR can more accurately estimate household incomes.

Once the NBR has adjusted their formula to account for tariff changes, they can compare the estimated incomes with income tax records. Households with high estimated incomes but low reported incomes would be flagged for further investigation. Additionally, by comparing electricity consumption data across similar neighbourhoods, the NBR can refine their estimates and identify areas with high potential for tax revenue.

In addition to using electricity bills, this approach can be further enhanced by incorporating other remote sensing data and relevant urbanisation indicators. For instance, satellite imagery can provide valuable information about built-up areas, which often correlate with economic development. Areas with rapid expansion of built structures, such as residential, retail, and