Chapter 10
The Distributional Impact of Efficient Energy Pricing in India

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ABSTRACT
This chapter by Coady and Hanedar revisits the issue of the distributional impact of energy subsidy reform. It adds to the existing literature on a number of fronts. First, based on recent estimates of efficient energy taxes for India in the literature, it calculates the domestic energy price increases required to bring energy prices to levels that reflect the true social cost of energy consumption, including domestic and global environmental damage. It then simulates the impact of these price increases on household real incomes and how this varies across household income groups. Second, it extends the analysis to the efficient pricing of coal, the most polluting of all energy sources. Third, it also identifies key sectors of the economy that are likely to be the most impacted by higher energy prices.

1. INTRODUCTION
India has traditionally regulated domestic energy prices in an attempt to protect domestic consumers (both households and firms) from high and volatile international energy prices. However, it is widely recognized that not only are energy subsidies inefficient but the bulk of energy subsidy benefits are also captured by higher-income households (Arze del Granado, Coady and Gillingham, 2012; Coady, Flamini and Sears, 2015; Clements and others, 2013; Anand and others, 2013, 2014). Recent work has also highlighted the key role that energy subsidy reform, when combined with a scaling up of social spending, can play in achieving growth-friendly and poverty-reducing fiscal consolidation (Abdallah and others, 2015).

This chapter revisits the issue of the distributional impact of energy subsidy reform. It adds to the existing literature on a number of fronts. First, based on estimates of efficient energy taxes in Parry and others (2014) and Coady and others (2015), it calculates the domestic energy price increases required to

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bring energy prices to levels that reflect the true social cost of energy consumption, including domestic and global environmental damage. It then simulates the impact of these price increases on household real incomes and how this varies across household income groups. Second, it extends the analysis to the efficient pricing of coal, the most polluting of all energy sources. Third, it also identifies key sectors of the economy that are likely to be the most impacted by higher energy prices.

The format of the chapter is as follows. Section II provides a brief outline of the key components of efficient energy pricing. Section III reviews recent energy price reforms in India and identifies the gap between current domestic energy prices and efficient prices and the required increase in domestic energy prices to eliminate this gap. Section IV briefly outlines the methodology used to estimate the impact of energy price increase on household real incomes and its distribution across household income groups and presents the results of our analysis. Section V summarizes our key findings and provides some concluding remarks.

2. EFFICIENT ENERGY PRICING

The efficient pricing of energy products (e.g., gasoline or coal) requires that consumers (i.e., households and firms) face a price that reflects three different components. These include—see Parry and others (2014) and Coady and others (2015) for a more detailed discussion:

- **The Supply Cost:** The supply cost of energy is the opportunity cost to a country of supplying the energy product to consumers. For internationally tradable products, such as petroleum products, the supply cost is the international price of the product adjusted for transport and distribution costs. For goods that are not internationally traded (or “non-traded”), the supply cost is the domestic cost of production (“cost-recovery price”), where costs are evaluated at efficient prices.

- **A Pigouvian Tax:** When the consumption of a good generates an external cost on society then efficient pricing requires that consumers face a price that also reflects this cost. In the absence of a well-functioning market for internalizing this cost in the consumer price, efficiency requires the imposition of a Pigouvian tax equal to the external cost generated by additional consumption. This is especially relevant for energy consumption since the consumption of fossil fuels generates a range of external costs including: costs imposed by outdoor air pollution resulting in a higher risk of mortality; costs associated with traffic congestion, accidents and road damage1; and the global environmental damage resulting from CO2 emissions.

- **A Consumption Tax:** Energy consumption should also be subject to the same standard consumption tax levied on other consumption items for the purpose of raising revenue. These taxes should only be levied on final energy consumption by households with intermediate energy consumption by firms being exempt to avoid distorting firms’ input choices (e.g., Diamond and Mirrlees, 1971), e.g., as with a value added tax. The base for this tax should also be the sum of the supply cost and the Pigouvian tax.
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