WP/18/174

IMF Working Paper

Universal Basic Income in Developing Countries: Issues, Options, and Illustration for India

by David Coady and Delphine Prady

INTERNATIONAL MONETARY FUND

 WP/18/174

IMF Working Paper

Fiscal Affairs Department

Universal Basic Income in Developing Countries: Issues, Options, and Illustration for India

Prepared by David Coady and Delphine Prady

July 2018

Abstract

This paper discusses two common arguments for the adoption of a UBI: that it can be a more effective way of supporting low-income households when existing safety net programs are inefficient, and that it can generate broad support for structural reforms. Using India as an illustration, the paper discusses the trade-offs that need to be recognized in adopting a UBI in these contexts. It shows that replacing the 2011 Public Distribution System (PDS) with a UBI results in welfare losses for many low-income households, although much of this can be reduced by returning the PDS operational losses and the fiscal savings from excluding the highest-income groups to households as higher UBI transfers. In contrast, replacing inefficient energy subsidies—raising energy prices to efficient—could simultaneously deliver unambiguous distributional gains, help address fiscal pressures, and improve energy efficiency with associated environmental and health gains. Realizing such reforms would, of course, require careful communication and implementation to address political and social barriers to reform.

Keywords: Universal basic income, safety net reform, efficient energy pricing, distributional gains

JEL Codes: H23, H53

Author's E-Mail Addresses: dcoady@imf.org; dprady@imf.org

Contents **Page**

Abstract 2

I. Introduction 4

II. Replacing an Inefficient Social Safety Net 5

III. Building Support for Structural Reform: Efficient Energy Pricing 10

IV. Energy Subsidy Reforms In India in Recent Years 12

V. Summary and Conclusions 14

References 16

Figures
1. PDS Coverage, Targeting, and Generosity Across Deciles 7
2. Gains and Losses from Substituting a UBI for the PDS 8
3. Gains and Losses from Substituting a UBI for the PDS (with Efficiency Gains) 9
4. Energy Subsidy Across Deciles 11
5. Energy Subsidy Targeting and Generosity Across Deciles 12
6. Gains and Losses from Substituting a UBI for Energy Subsidies 13

Appendix
1. PDS and Energy Subsidy Estimates 18

Appendix Tables
1. Average Budget Shares for Rice, Wheat, Sugar, and Kerosene 18
2. Average Budget Shares for Energy Products 20

Appendix Figures
1. Average Household PDS Subsidy 19
2. Average Household Direct (D) and Indirect (I) Effects of Energy Subsidy 20

I. INTRODUCTION

The idea of a universal basic income (UBI) is attracting growing attention among academics, policy makers and the wider public. This paper discusses two common arguments used to motivate the adoption of a UBI. First, it is often argued that the UBI can be a more effective way of supporting low-income households when existing income support programs are inefficient and the source of these inefficiencies (such as administrative constraints) cannot be easily addressed over the short term. Second, it is argued that the UBI can play an important role in generating public and political support for the implementation of structural reforms in support of economic growth by mitigating the adverse impact of these reforms on households, especially low-income and middle-income households. This paper discusses these two motivations using India as an illustration, highlighting the important trade-offs that need to be carefully managed if a UBI is adopted in these contexts.[1]

The potential advantages of adopting a UBI in India to replace existing food and energy subsidies have been widely debated in recent years. For instance, in January 2017, a full chapter of the 2016/17 Economic Survey (Government of India, 2017a) was devoted to a discussion of the merits and challenges of adopting a UBI as an alternative to the existing system of food and energy subsidies.[2] These subsidies are typically characterized as fraught with inefficiencies and inequities. Numerous studies have documented their incomplete coverage of the poor, the extensive leakage of benefits to the rich, significant operational inefficiencies, and high potential for fraud and corruption. However, reform of these subsidies is hindered by concerns for the possible adverse impact on households, especially low-income households. This paper evaluates how the adoption of a UBI could potentially help address the shortcomings of existing subsidies as well as the underlying concerns about the adverse impact of their removal on low-income households, and discusses the trade-offs that arise in replacing them with a UBI.

The paper starts by discussing the adoption of a UBI as a substitute for the Public Distribution System (PDS), which provides income support to households through price subsidies for wheat, rice, sugar and kerosene consumption. It then discusses the introduction of a UBI as part of an ambitious structural reform program centered around increasing energy prices to efficient levels that reflect the true social cost of energy consumption, associated with domestic pollution, congestion and global warming.[3] Reflecting data availability, our analysis is anchored in 2011 using the Indian 2011–12 National Sample Survey (NSS), which suffices given the illustrative nature of the analysis. However, to provide a real world context and flag potential administrative and political challenges that may arise in adopting a UBI and ensuring it has universal coverage,

[1] For a discussion of the differing principles underlying various arguments in favor or against a UBI, see IMF (2017a); and Atkinson (2015) and Emery, Fleisch and McIntyre (2013) for broader discussion of the potential role for a UBI and implementation challenges.

[2] Khosla (2018) provides an overview of UBI proposals in India, along with a critical assessment of estimates and policy recommendations in Government of India (2017a). Other papers on UBI in India include Davala and others (2015), Joshi (2016), Government of India (2018), Drèze (2017), and Sandefur (2017). See also IMF (2017b) for a review of different options and associated fiscal cost.

[3] For an analysis of alternative reform options to adopting a UBI, including a targeted (and possibly conditioned) cash transfer program, see Abdallah and others (2015)

the paper also discusses the numerous important subsidy reforms that have more recently been introduced in India and recent safety net reform initiatives. A key feature of the analysis in the paper is the focus on fiscally neutral reforms to help bring out the important trade-offs between various policy objectives and to abstract from other possible concerns about the adoption of a UBI, such as the unintended crowding out of growth enhancing public expenditures (e.g., public investments in infrastructure, education, health and nutrition; Sen 1992). In all simulations, the UBI has a simple design whereby every individual in the population receives an unconditional uniform cash transfer, with the common transfer level set to fully exhaust the fiscal gains from subsidy reforms.

II. Replacing an Inefficient Social Safety Net

The public distribution system dates back to the 1960's when it aimed at containing food prices and ensuring food access to urban consumers through a system of ration cards that entitled holders to a fixed quantity of food and fuel (kerosene) at subsidized prices through a network of Fair Price Shops (FPSs). Subsequently, the system was scaled up to also cover the rural population. It was also extensively reformed on several occasions. In 1992, the Revamped Public Distribution System (RPDS) was launched to strengthen coverage in very remote areas with high concentrations of poor households. In 1997, the Targeted Public Distribution System (TPDS) was launched, replacing the existing PDS, and states were required to formulate and implement effective arrangements for the partitioning of households into above and below the poverty line—the former holding an above-poverty-line card (APL) entitling them to lower quantities of subsidized food than the latter holding a below-poverty-line card (BPL). In 2001, an additional layer of targeting was added to reach the poorest of the poor with larger benefits, designated as the "Antyodaya Anna Yojana" (AAY).

In 2013, the implementation of the National Food Security Act (NFSA) transformed the TPDS, in principle disconnecting eligibility and entitlements to PDS subsidized goods from poverty status (i.e., ostensibly a shift from a welfare approach towards a rights-based approach). Under NFSA, the PDS should cover up to 75 percent of the rural population and up to 50 percent of the urban population, with every eligible beneficiary entitled to receive five kilograms of food grain at a highly subsidized price, but with higher entitlements for AAY families.

The operation of the TPDS requires extensive government interaction along the complete food chain. Under the TPDS, the Central Government, through several ministries and agencies (including the Food Corporation of India), is responsible for procurement, storage, transportation and bulk allocation of wheat, rice, sugar and kerosene to State Governments. The Central Government sets the quantities that each state must supply to the central pool, the quota that each state is entitled to draw from it, and the minimum price to be paid to traders and millers for the quantities supplied to the system. The State Governments are responsible for actual procurement, the identification of eligible families, issuing of ration cards, setting of ration prices, and supervision of the functioning of FPSs.

Our analysis below is based on the 2011–12 National Sample Survey (NSS), i.e., prior to the introduction of the NFSA.[4] It also adopts a national perspective that abstracts from the wide disparities in the implementation of the PDS across different Indian states before 2013 (Basu and Das, 2015). Indeed, between 2011 and 2013, certain states bypassed the distinction between APL and BPL holders, in effect largely expanding the PDS coverage. For instance, 90 percent of households consume rice from the PDS in Tamil Nadu where the state enforces a near-universal PDS, while around 45 percent of households consume PDS rice in Maharashtra where the state enforces stricter eligibility criteria, including a lower income threshold and exclusion of certain socio-economic categories like government employees. Furthermore, certain states have reduced the price of subsidized goods below the prices issued by the central government, generating wide variations in the generosity of implicit income transfers. For instance, these subsidies can reach around 220 rupees/month/household in Tamil Nadu where the state PDS grain was free in 2011, compared to around 60 rupees/month/household in Maharashtra.

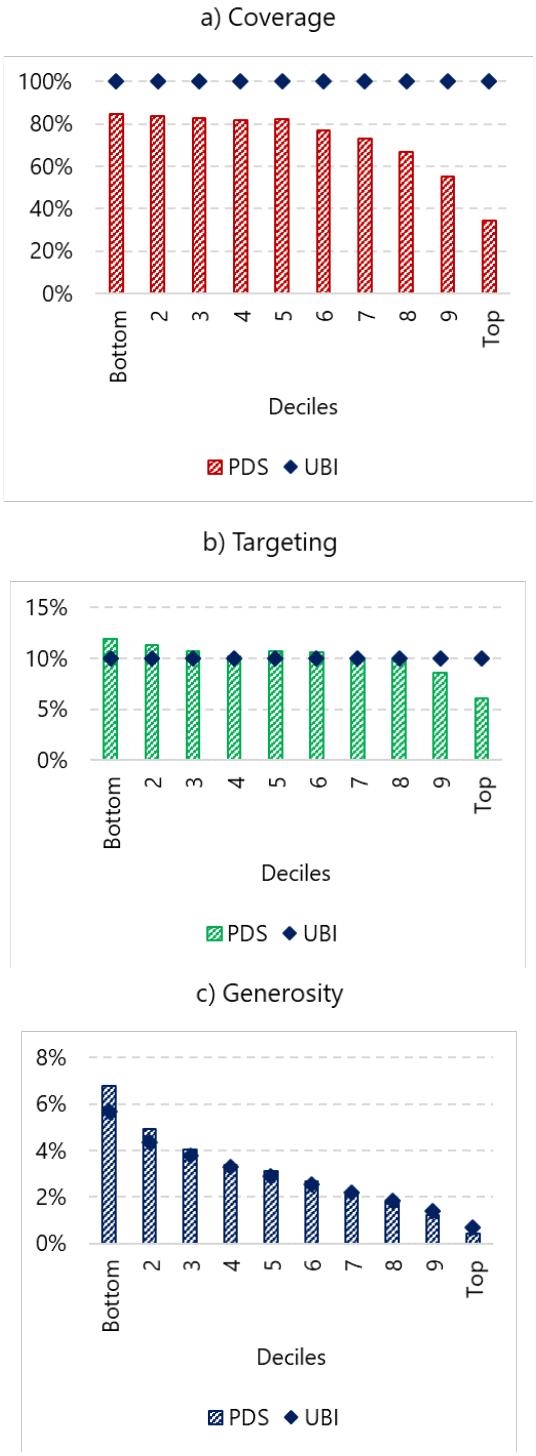
Although the functioning of the system varies widely across states, systemic inefficiencies have been extensively documented. The Indian Ministry of Finance estimates that 36 percent of total PDS allocation never reaches final beneficiaries because of "out-of-system" leakages along the procurement-transportation-distribution chain (Ministry of Finance, Government of India, 2017a). More specifically, taking kerosene as an example, there is an estimated 41 percent gap between the total PDS subsidized kerosene allocation by the Central Government and actual household consumption as captured by the 2011–12 NSS (Ministry of Finance, Government of India, 2016).

Furthermore, despite its broad coverage of the population, sizeable under-coverage of lower-income groups still exists under the PDS. Based on NSS 2011–12, approximately 20 percent of households in each of the bottom two income quintiles do not receive any benefits (Figure 1a). At the same time, a large proportion of higher-income deciles receives PDS subsidies, with the richest 40 percent of households receiving 35 percent of total PDS subsidies (Figure 1b). Because of this under-coverage and leakage, most income deciles receive similar shares of total PDS benefits, which would also be the outcome under a UBI program. Therefore, substituting a UBI for the current PDS would be expected to generate only a mild tradeoff between coverage and targeting of the bottom income deciles.

Figure 1 also shows how the performance of the PDS compares to a UBI in terms of coverage, targeting and progressivity. A UBI would outperform the 2011 TPDS program in terms of coverage of lower income groups (Figure 1a) since, by design, it covers all households. However, improved coverage under the UBI comes at the expense of a slight deterioration in benefit targeting and generosity at the bottom (due to greater leakage of benefits to top income groups; Figure 1b and 1c). A UBI would leave benefit progressivity virtually unchanged (Figure 1c).

[4] See Appendix for the methodology underlying the benefits households receive from PDS and energy subsidies. Net benefits from reforms are calculated as the level of the UBI minus these subsidy benefits.

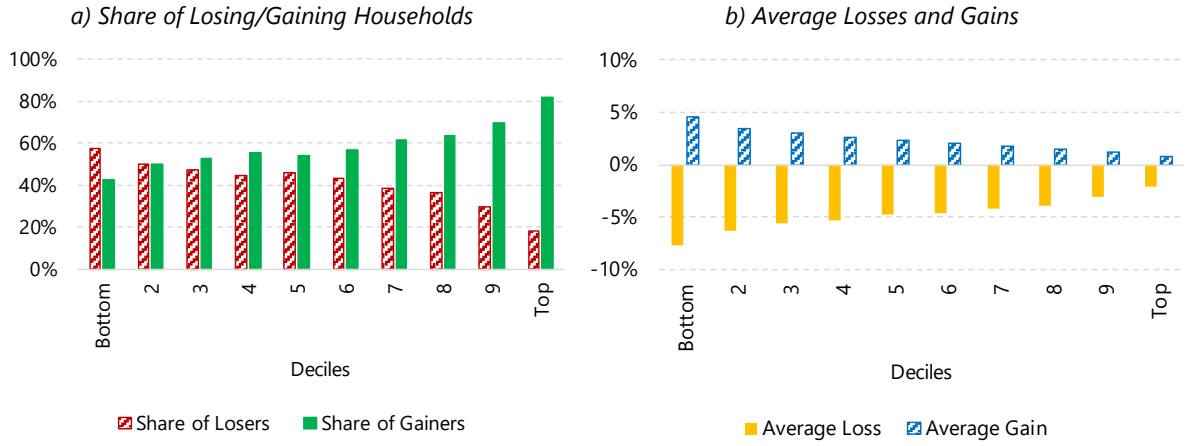
Figure 1. PDS Coverage, Targeting, and Generosity Across Deciles



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure. Coverage of PDS proxied by the percentage of households reporting they hold and use a ration card. Targeting is defined as the distribution of total PDS spending across income deciles. Generosity is the average share of PDS subsidy in household total expenditure, among all households in a decile.

Replacing the PDS with a UBI would redistribute benefits within as well as across income deciles. On average, 50 percent of households in the bottom four income deciles would face a 6 percent welfare loss, while the other 50 percent would gain 3 percent (Figures 2).[5] However, to the extent that the elimination of the PDS would also eliminate its inherent operational (so-called "out-of-system") inefficiencies, and that these result in public expenditure savings, these savings could be returned to households as a more generous UBI and this in turn would help to mitigate the losses incurred by some households in lower income deciles. It has been estimated that 36 percent of PDS total spending never reaches the intended households (Ministry of Finance, Government of India, 2017a) due to the existence of "ghost beneficiaries" and the large illegal diversion of subsidized goods resold on the open market. That is, out of every 100 Rupees spent on the program, only 64 reaches households. In conjunction with the switch to cash (as opposed to in-kind) transfers, the ongoing use of the improved identification technology of the Aadhaar biometric citizen registry could be instrumental in realizing these additional efficiency savings.

Figure 2. Gains and Losses from Substituting a UBI for the PDS



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure. Average losses and gains are computed among losing and gaining households.

Figure 3 demonstrates the impact of recycling the estimated expenditure savings of 36 percent through an increase in the UBI, equivalent to a 55 percent increase in the uniform transfer (i.e., 36 divided by 64). This would have the effect of reducing the number of losers in the bottom four income deciles to below 40 percent, bringing down the average share of losers in the bottom four income deciles from about one half to a third (Figure 3a). The increase in UBI generosity would also reinforce the gains for other households, on average from 3 to 5 percent in the bottom four income deciles (Figure 3b).

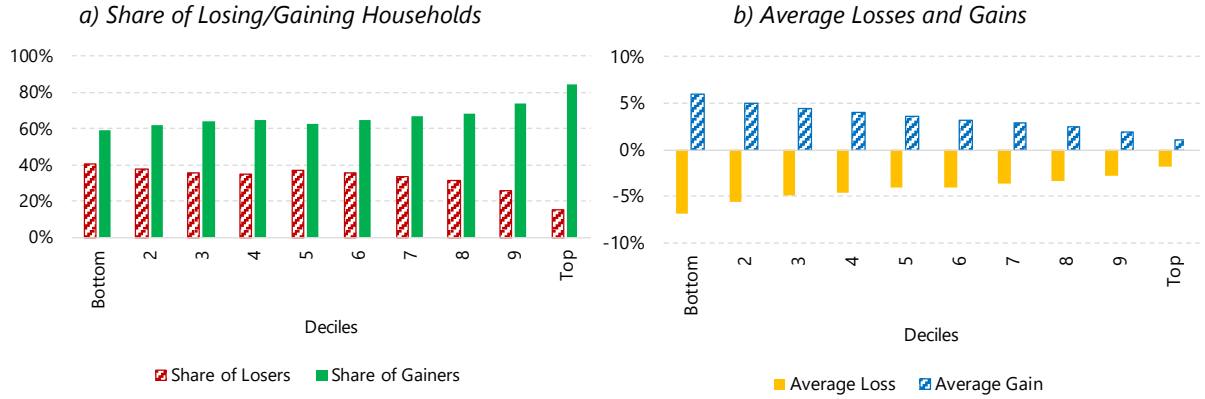
The losses for some households could also be further reduced by relaxing the objective of universality by somehow excluding the top income groups from the UBI.[6] For example, reallocating UBI transfers going to households in the top three income deciles, on top of the

[5] Note that the households with the largest losses will, by design, be those who had the largest benefits under the PDS.

[6] This possibility has also been discussed in the context of the UBI in India (Ministry of Finance, Government of India, 2017a). An alternative would be to increase income tax rates at the top of the income distribution.

efficiency gains, would result in a 42 percent increase in the per capita level of UBI for the rest of the population and reduce the proportion of losers in the bottom four deciles by 28 percent (from an average of 50 to 22 percent).

Figure 3. Gains and Losses from Substituting a UBI for the PDS (with Efficiency Gains)



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure. Average losses and gains are computed among losing and gaining households.

Further analysis of the losers at the bottom of the income distribution could help design specific programs targeting these households. Losing households at the bottom four income deciles receive larger PDS subsidies, around 45 percent higher than the level received by other beneficiary households. The probability of being a loser in the bottom four deciles varies substantially across states, with a higher probability in the states of Delhi, Manipur, Gujarat, Daman and Diu, and Nagaland. Urban and large households with a greater share of youth and elderly also appear to have a higher probability of losing from the PDS transformation into a UBI. Other programs, such as a targeted conditional cash transfer (CCT) program that links benefit eligibility to households investing in the education, health and nutrition status of their children, could further help to address these losses.

The transformation of the current in-kind PDS program into a universal cash transfer would also entail administrative and political implementation challenges that need to be carefully considered. While a cash transfer system is likely to be much simpler to administer than the PDS[7], especially with the recent rolling out of the Aadhar identity system nationwide, it would still require ensuring an effective network for transferring money directly to households across the country.[8] The Indian authorities could build on their recent experience in transforming Liquefied Petroleum Gas (LPG) price subsidy program. In 2014, in a number of pilot districts, the government replaced the existing LPG subsidy program based on the distribution of subsidized

[7] See Currie and Gahvari (2008) for a review of arguments advanced for in-kind vs. cash transfers.

[8] Increased take-up costs for households in remote areas without bank access, and transition costs (e.g., disruption, learning about a new system, changes in consumption behaviors, etc.) from dismantling an old program, should be accounted for in the communication strategy, and the design of complementary measures to address these issues (Khera, 2014).

LPG cylinders with a cash transfer scheme (the PAHAL Scheme, or Direct Benefit Transfer for LPG (DBTL) program), leveraging increasing household access to bank and mobile services, coupled with the Aadhaar biometric identification.[9] The objective was to eliminate ghost beneficiaries through better identification of actual consumers and to discourage diversion of subsidized LPG to the market for higher prices. Prior to the reform, beneficiary households were entitled to purchase annually up to twelve subsidized LPG cylinders from designated supply depots. Under the new regime, beneficiaries pay the market price for their LPG but receive the price difference between the market and subsidized prices as a direct transfer to their bank account.

Unlike a UBI, this reform requires not only the effective identification of LPG consumers but also the quantity consumed. In 2015, the DBTL was expanded to all districts in India and by 2016–7 the share of LPG subsidies allocated through the DBTL program was reported to be 58 percent. To reduce the cost of the program and improve its targeting, the government publicly encouraged well-off households to give up their subsidy entitlement (the so-called "give-it-up" movement), with the option to switch back to the subsidy one year after giving up. While this initially created additional fiscal space, the number of consumers switching back to the subsidy after giving it up is increasing as unsubsidized LPG prices trend upwards.[10]

III. Building Support for Structural Reform: Efficient Energy Pricing

Despite recent reforms aimed at phasing out energy subsidies, energy prices in India are still below their efficient levels. Efficient pricing of energy products (gasoline, diesel, coal, LPG and kerosene) requires that consumers (i.e., households and firms) face a price that reflects three different components: a supply cost (i.e., the opportunity cost to a country of supplying the energy product to consumers), a standard consumption tax to contribute towards revenue-raising objectives, and a Pigouvian tax to internalize energy consumption externalities (Coady and others, 2017). Coady and Hanedar (2016) estimated that in India the following price increases would be required to reach efficient energy prices: gasoline (67 percent), diesel (69 percent), kerosene (10 percent), LPG (67 percent) and coal (455 percent).[11] These are of

[9] This replaced a smaller-scale pilot DBT program rolled out between 2013 and 2014. PAHAL-DBTL is part of a broader policy, launched in 2013, whose stated objective is to "cut out middlemen to put more into the hands of beneficiaries" through gradually shifting current subsidies, grants, and other social assistance schemes to direct budget transfers (DBT) to beneficiary bank accounts. There are currently 1,132 schemes from 74 Ministries that are planned to transition to DBT, out of which 462 from 57 Ministries already did. For further details, see https://dbtbharat.gov.in/scheme/dbtapplicablelist

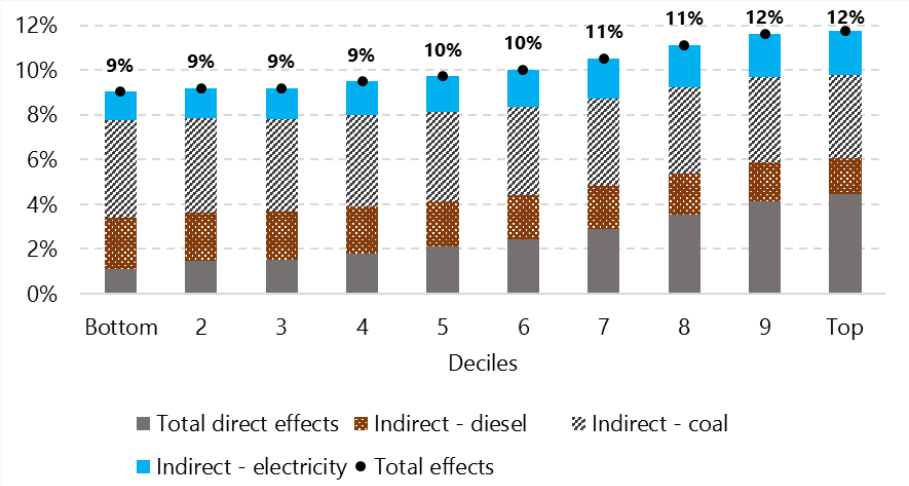
[10] The decrease in the take-up of the "give-it-up" option is symptomatic of the incomplete reform of LPG subsidy under PAHAL. Indeed, since the LPG price subsidy is simply replaced by a monetized price subsidy, the benefit amount still depends on the quantity consumed (up to 12 cylinders) discouraging households from curbing overconsumption.

[11] Differences in retail and efficient prices are estimated as of June 2015; household income savings are estimated based on their consumption patterns as reflected in the 2011–12 NSS. Therefore, our distributional analysis is anchored in 2011, and the price difference estimates are anchored in June 2015 and do not account for later energy price reforms. The price increase indicated for kerosene refers to the price gap on the unsubsidized kerosene market, which accounts for a very small fraction of the total kerosene consumption as the bulk of it is consumed through the PDS program. The reform of the kerosene subsidy based on using the supply (or

course very large price increases so that such an ambitious reform would have to be carefully designed and implemented to address reform challenges.[12]

Energy subsidies benefit households through two distinct channels: a direct channel as energy products directly consumed by households (for cooking, heating, lighting and private transport) are cheaper; and an indirect channel as other goods and services consumed by households, which use energy products as an input, are lower due to lower production and distribution costs. Figure 4 shows the distribution of these subsidy benefits based on 2011 consumption patterns. These are substantial and regressive. On average, household subsidy benefits are equivalent to around 10 percent of their total expenditures, with wealthier households benefiting more (on average, 11.5 percent of total expenditures in top three income deciles) than poor households (on average, 9 percent in bottom three income deciles). Reflecting different consumption patterns across the income distribution, while the indirect benefits from low coal prices are relatively neutrally distributed across deciles, the indirect benefits from low electricity prices are regressive while those from low diesel prices are progressive. Around one quarter of total subsidy benefits come through the direct effect and are highly regressive.

Figure 4. Energy Subsidy Across Deciles
(Percent of total household expenditure)



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure. Effects among consuming households.

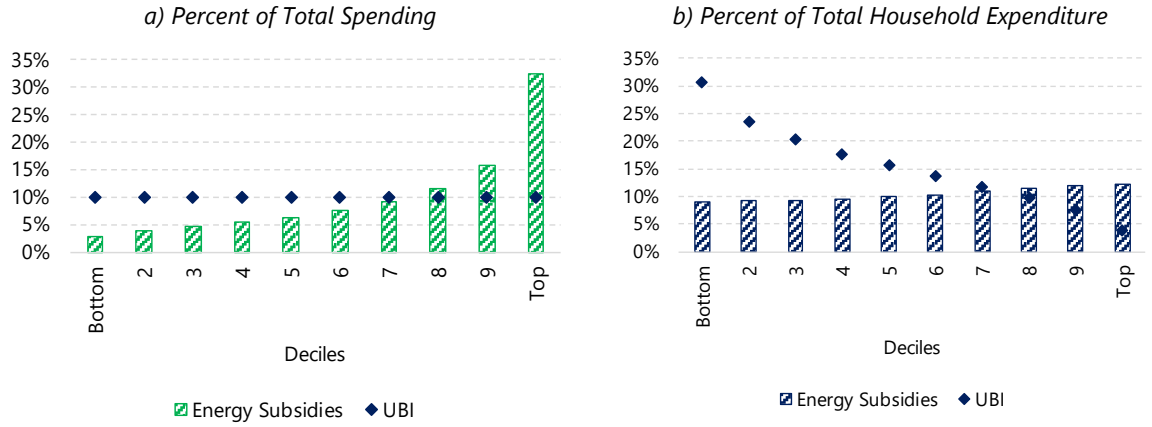
Energy subsidies are therefore a very inefficient way of providing income support to the poor. Richer households benefit disproportionately from these subsidies reflecting the high underlying income inequality and the fact that they consume a relatively high share of total energy consumed: while households in the bottom four income deciles receive 17 percent of total energy subsidies, households in the top four income deciles receive 69 percent (Figure 5a). Replacing these subsidies with a UBI in a budget neutral way would therefore result in a

opportunity) cost is therefore encompassed in the discussion of the PDS reform and its transformation into a UBI in Section I.

[12] See Clements and others (2013) for a discussion of these challenges and reform options to address them.

substantial redistribution of benefits from higher to lower income groups and a substantial increase in benefit generosity for lower income groups (Figure 5b).

Figure 5. Energy Subsidy Targeting and Generosity Across Deciles



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure.

Whereas households in the bottom three income deciles receive only 9 percent of energy subsidies, they would receive 30 percent of UBI transfers. Average benefit levels for lower income groups would also be substantially higher under the UBI than under energy subsidies. On average, for households in the bottom three income deciles, a UBI would represent 25 percent of their total expenditure, around three times more than current energy subsidies representing around 9 percent of total expenditure. However, while over 90 percent of households in each of the bottom four income deciles gain from the switch to a UBI, the losses of the small share of households who lose is sizeable (Figure 6). On average, 2 percent of households in the bottom three income deciles would incur a substantial average welfare loss of 11 percent. By definition, these are households that receive large subsidies under the current system and therefore are very energy intensive. To the extent that households can reduce consumption of goods with relatively high price increases (including reducing wasteful use of energy), the welfare losses from these price increases will be lower and the net welfare gain from switching to the UBI higher. Complementary policies to facilitate more efficient energy consumption by households can reinforce behavioral change to help further reduce the welfare impact on all households, including the poor.

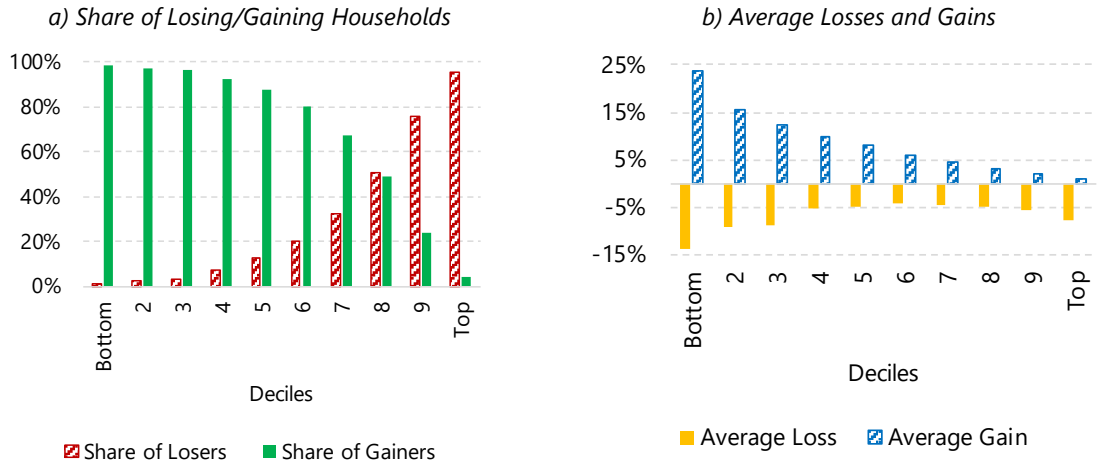
IV. Energy Subsidy Reforms In India in Recent Years

As indicated earlier, over recent years the government has implemented substantial energy subsidy reforms.[13] Gasoline prices have been liberalized since 2010. Starting in 2013, diesel prices

[13] Note that although recent reforms have reduced the gap between consumer prices and efficient prices, the issues discussed in the above analysis are still relevant. For a broader cross-country discussion of the magnitude of energy subsidy reforms and the welfare impacts of reforms see Coady and others (2017) and Coady, Parry and Shang (2018). Note also that the issues addressed in this paper are also likely to be relevant for other potential subsidy reforms in India, such as fertilizer subsidies.

were increased by a half rupee per month until they reached international parity, and have been fully liberalized since January 2015. Since June 2017, gasoline and diesel prices at the pump are changed daily according to a revised automatic pricing formula that sets consumer prices, instead of twice a month under the previous regime. The government also used the fall in oil prices to offset the price decline at the pump with higher taxes. Currently, petrol and diesel are taxed once by the central government through a central excise tax and then again at the state level through a value-added tax. Excise duties, levied by the central government on petrol and diesel, have been increased nine times since November 2014. The Minister of Petroleum and Natural Gas has proposed to bring petrol and diesel under the goods and services tax (GST) that was introduced in July 2017 and which would replace both central excises and the local VATs.

Figure 6. Gains and Losses from Substituting a UBI for Energy Subsidies



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure. Average losses and gains are computed among losing and gaining households.

In 2017, the government committed to gradually phase out LPG subsidies by April 2018 for domestic consumers, by increasing the cost of LPG cylinders by four rupees/month (Ministry of Finance, Government of India 2017b). All households are entitled to a cash transfer (DBTL) corresponding to the price difference between the subsidized and unsubsidized LPG cylinder prices, up to twelve cylinders a year.[14] This simply changes the nature of subsidies from in-kind to cash, although this can also help to cut-out the potential for fraud by middlemen. With fixed administrative prices, the size of subsidies is determined by changes in market LPG prices. Elimination of subsidies will require reductions in the gap between administrative and market prices and the eventual removal of government price intervention, e.g., in a gradual manner as with diesel.

Indian authorities have assessed the opportunity of using digitalization and increased financial inclusion (JAM) to substitute cash transfers to food and energy subsidies (Ministry of Finance,

[14] It is not clear whether the DBTL has been increased to offset recent price hikes (International Institute for Sustainable Development, 2015).

Government of India, 2016).[15] According to this assessment, priority should be given to current subsidies with high levels of leakages (to increase efficiency gains) and with a high degree of central government control (to limit coordination costs among different interest groups along the supply chain). The implicit energy subsidies analyzed in this paper meet both criteria and could therefore be part of an ongoing reform effort that uses JAM to better reach low-income households and provide the support they need.

Although there have been many recent changes, the distributional results presented in this paper would still hold true even if the fiscal space freed through terminating the PDS program and energy subsidies would be smaller. Nonetheless, there are other genuine concerns regarding the introduction of a UBI in India that this paper does not address[16]:

- There may be several policy priorities (for example, to increase public spending in health or education, or to reduce the fiscal deficit) competing for financing. The desirability and level of a UBI in such a context of scarce resources has to be assessed against other governmental priorities and the potential for greater revenue mobilization.
- Many vested interests in the status quo can make it difficult to reform long-lasting and well-known programs.
- Direct cash transfers may be difficult to implement and the risk of excluding poor households remains, even under universal schemes. In this respect, phasing in a UBI through the gradual introduction of categorical cash transfers such as social pensions and child benefits could be an efficient way to transition from subsidies to (broad) cash transfers (Khera 2016 and Drèze 2017).

V. SUMMARY AND CONCLUSIONS

This paper discusses two common arguments used to motivate the adoption of a UBI: (i) that it can be a more effective way of supporting low-income households when existing income support programs are inefficient, and (ii) that it can play an important role in generating public and political support for the implementation of structural reforms in support of economic growth. Although the empirical analysis uses data for India to illustrate the trade-off involved, the discussion has broader relevance for countries considering similar reforms.

The paper starts by discussing the adoption of a UBI as a substitute for the Public Distribution System (PDS), which provides income support to households through price subsidies for wheat,

[15] Centralized cash transfer to individuals requires identification, banking coverage, and effective access to cash after transfer. Since 2014, Indian authorities have launched large-scale initiatives, commonly referred to as the "JAM trinity", to master these necessary steps: i) identification with the Aadhaar biometric ID system, covering nearly 99 percent of the population aged 18 and over in 2017; ii) banking coverage with the Jan Dhan scheme helping household open a bank account, reaching an average banking coverage of 46 percent across Indian States, lower in rural states; iii) the use of mobile penetration – average penetration lower than 56 percent only in 2 states.

[16] For a broader discussion of the potential role for a UBI and implementation challenges, see Atkinson (2015) and Emery, Fleisch, and McIntyre (2013).

rice, sugar and kerosene consumption. It then discusses the introduction of a UBI as part of an ambitious structural reform program centered around increasing energy prices to efficient levels that reflect the true social cost of energy consumption. Both reforms are designed to be budget neutral.

While the replacement of the PDS with a UBI would help to address under-coverage of low income households under the former, this gain would come at the expense of a slight increase in leakage of benefits to higher income groups. In addition, a sizeable percentage of existing PDS beneficiaries would lose from the reform, including many low-income households. The number of losers and the magnitude of their losses could be reduced by recycling the efficiency gains from avoiding the "out-of-system" losses throughout the procurement, storage and distribution stages as a higher UBI benefit. Alternatively, by excluding higher income groups from the UBI, these savings could similarly be recycled. In addition, other more targeted programs could help protect poor households adversely impacted by the reform.

In contrast, replacing inefficient energy subsidies—raising domestic energy prices to efficient levels—would deliver unambiguous distributional gains as well as strong incentives for improving energy efficiency with the associated environmental and health gains. The very high leakage of benefits under universal energy price subsidies means that the equal sharing of these subsidies under the UBI would deliver significant income gains for low-income households, financed by losses for the highest income households. These welfare gains will be even higher to the extent that higher energy prices incentivize energy consumers (households and firms) to decrease wasteful energy use and improve their energy efficiency. Only a few low-income households lose from the reform, albeit some significantly. However, to the extent that such losses reflect wasteful use of energy, higher energy prices provide a strong incentive to reduce this waste and therefore the adverse welfare impact of energy price reforms. Complementary programs can also focus on facilitating energy-saving behaviors by consumers, especially low-income households.

REFERENCES

Abdallah, Chadi., David Coady, Sanjeev Gupta and Emine Hanedar, 2015, "The Quest for the Holy Grail: Efficient and Equitable Fiscal Consolidation in India", in *Inequality and Fiscal Policy*, edited by Benedict Clements, Ruud de Mooij, Sanjeev Gupta, and Michael Keen (International Monetary Fund, 2015).

Atkinson, Antony, 2015, *Inequality: What can be done?* Cambridge, MA: Harvard University Press.

Basu, Deepankar and Debarshi Das, 2015, "Social Hierarchies and Public Distribution of Food in Rural India", Economics Department Working Paper Series No. 2014-05 (Amherst, Massachusetts: University of Massachusetts Amherst, Department of Economics).

Clements, Benedict, David Coady, Stefania Fabrizio, Sanjeev Gupta, Trevor Alleyne, and Carlo Sdralevich, eds., 2013, *Energy Subsidy Reform: Lessons and Implications*. International Monetary Fund (Washington).

Coady, David and Emine Hanedar, 2016, "The Distributional Impact of Efficient Energy Pricing in India," in *Economic Modeling, Analysis, and Policy for Sustainability*, ed. by Anandajit Goswami and Arabinda Mishra (New Delhi, India: TERI Research Institute).

Coady, David, Ian Parry, Louis Sears, and Baoping Shang, 2017, "How Large Are Global Fossil Fuel Subsidies?," *World Development*, Vol. 91, pp. 11–27. https://www.sciencedirect.com/science/article/pii/S0305750X16304867

Coady, David, Ian Parry and Baoping Shang, 2018, "Energy Price Reform: A Guide for Policymakers", *Review of Environmental Economics and Policy*. Available at: https://academic.oup.com/reep/advance-article/doi/10.1093/reep/rey004/5039946?guestAccessKey=cd25a1e5-6bf6-4888-8eda-ccdfdb5c6e54

Currie, Janet, and Firouz Gahvari, 2008, "Transfers in Cash and in-Kind: Theory meets the Data," *Journal of Economic Literature,* Vol. 46 (No. 2), pp. 333–83. https://www.aeaweb.org/atypon.php?doi=10.1257/jel.46.2.333.

Davala, Sarath, Renana Jhabvala, Soumya Mehta, and Guy Standing (2015). *Basic Income: A Transformative Policy for India,* London and New Delhi, Bloomsbury Academic.

Drèze, Jean, 2017, "Universal Basic Income for India Suddenly Trendy. Look Out," Blog Post, NDTV, January 16, 2017. http://www.ndtv.com/opinion/decoding-universal-basic-income-for-india-1649293

Emery, Herbert, Valerie Fleisch, and Lynn McIntyre, 2013. "How a Guaranteed Annual Income Could Put Food Banks Out of Business", *The School of Public Policy SPP Research Paper*, 6(37), pp1-20.

Government of India (GOI), 2016, *Economic Survey 2015-16*, Ministry of Finance, Government of India.

_____, 2017a, *Economic Survey 2016-17*, Ministry of Finance, Government of India.

_____, 2017b, Medium-term Expenditure Framework Statement laid before Parliament as required under the Fiscal Responsibility and Budget Management Act, 2003.

_____, 2018, *Economic Survey 2017–18*, Ministry of Finance, Government of India.

International Institute for Sustainable Development (IISD), 2015, "Ghost savings: Understanding the Fiscal Impacts of India's LPG Subsidy." https://www.iisd.org/blog/ghost-savings-understanding-fiscal-impacts-indias-lpg-subsidy

International Monetary Fund, 2017a, *Fiscal Monitor: Tackling Inequality* (Washington).

_____, 2017b, "India: Universal Basic Income Proposals —Selected Issues Paper," IMF Country Report No. 17/55 (Washington).

Joshi, Vijay (2016), *India's Long Road: The Search for Prosperity*, Penguin Books India.

Khera, Reetika, 2014, "Cash vs. In-kind Transfers: Indian Data Meets Theory," *Food Policy*, Vol. 46, pp. 116–128. http://www.sciencedirect.com/science/article/pii/S0306919214000499/pdfft?md5=051044471d143b4e875032412001e1de&pid=1-s2.0-S0306919214000499-main.pdf

_____, 2016, "A Phased Approach will make a 'Basic Income' Affordable for India," Wire, December 20, 2016. https://thewire.in/88350/basic-income-phased-approach

Khosla, Saksham, 2018, "India's Universal Basic Income, Bedeviled by the Details" (Washington: Carnegie Endowment for International Peace). http://carnegieendowment.org/files/CEIP_Khosla_Report_FNL_w_covers.pdf

Sandefur, Justin (2017), "Disintermediating the State: Would a Universal Basic Income Reduce Poverty more than Targeted Programs?" Blog Post, Center for Global Development, Washington DC.

Sen, Amartya, 1992, "The Political Economy of Targeting," Annual Bank Conference on Development Economics (Washington, D.C., World Bank Group).

Appendix 1. PDS and Energy Subsidy Estimates

PDS and energy subsidy estimates and incidence analysis are based on data from the most recent publicly available National Sample Survey (2011–12 NSS) which covers the whole of the Indian Union, and records data on expenditure of more than 100,000 households sampled for the survey. For the analysis, expenditure is used as a proxy for income. As survey information is collected at the household level, household expenditure is divided by the number of household members to obtain the welfare indicator (expenditure per capita). Deciles are based on per capita household expenditure, with each decile representing 10 percent of the population. Subsidy estimates assume that demand does not respond to price changes and therefore estimates should be interpreted as short-term welfare effects following price increases.

Estimates of PDS Subsidy

PDS subsidies for rice, wheat, sugar and kerosene are estimated as the additional expenditure households would have to incur to keep their consumption level constant if these prices were increased to market price levels. Market prices are computed as the average of prices paid across all households in the same income decile and geographical region for non-PDS rice, wheat, sugar and kerosene. For each PDS good the subsidy is computed as:

PDS Subsidy = PDS quantity x (market price – PDS price).

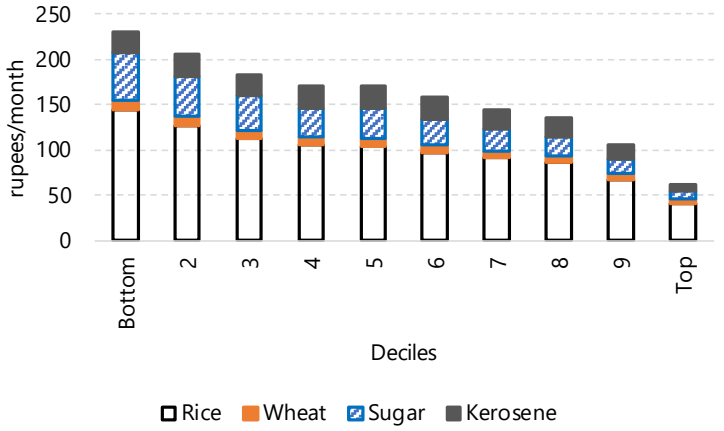
Table A1 shows average household budget shares of each PDS-subsidized good as well as of market-purchased consumption across each income decile. Appendix Figure 1 shows the average PDS subsidy received by households in each income decile.

Appendix Table 1. Average Budget Shares for Rice, Wheat, Sugar, and Kerosene
(Percent of total expenditure – all households)

	Rice		Wheat		Sugar		Kerosene	
Decile	**PDS**	**non-PDS**	**PDS**	**non-PDS**	**PDS**	**non-PDS**	**PDS**	**non-PDS**
1	1.8%	9.2%	0.8%	4.8%	0.4%	1.6%	1.3%	0.4%
2	1.2%	8.8%	0.6%	4.3%	0.3%	1.7%	1.0%	0.4%
3	1.1%	8.3%	0.5%	4.0%	0.2%	1.7%	0.9%	0.4%
4	0.9%	7.7%	0.4%	4.0%	0.2%	1.7%	0.8%	0.4%
5	0.8%	6.9%	0.4%	3.7%	0.2%	1.7%	0.7%	0.3%
6	0.7%	6.5%	0.3%	3.4%	0.2%	1.6%	0.6%	0.3%
7	0.6%	6.0%	0.2%	3.1%	0.1%	1.5%	0.5%	0.3%
8	0.5%	5.3%	0.2%	2.8%	0.1%	1.4%	0.4%	0.3%
9	0.3%	4.5%	0.1%	2.3%	0.1%	1.2%	0.3%	0.4%
10	0.1%	2.8%	0.1%	1.4%	0.0%	0.7%	0.1%	0.3%
Total	**0.7%**	**6.2%**	**0.3%**	**3.2%**	**0.2%**	**1.4%**	**0.6%**	**0.4%**

Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure.

Appendix Figure 1. Average Household PDS Subsidy
(Rupees/month – all households)



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure.

Estimates of Energy Subsidies

Energy subsidies for kerosene, coal, LPG, gasoline and diesel are estimated as the additional expenditure households would have to incur to keep their consumption level constant if these prices were increased to efficient price levels. Households would have to pay higher prices for energy they directly consume (i.e. direct effect), and higher prices for other goods and services that use energy products as inputs and would therefore cost more to produce (i.e. indirect effect).

For each energy product, the direct effect of efficient pricing is computed as:

Direct Effect = Budget Share x Percentage Price Increase

Price increases of goods other than energy products reflect increases in diesel and coal prices and are estimated using the model developed by Coady and Newhouse (2006), which assumes that increases in energy production costs are fully passed forward onto the domestic output prices of goods and services. For each product consumed by households, the indirect effect of efficient pricing of coal and diesel is then computed as:

Indirect Effect = Budget Share x Percentage Price Increase

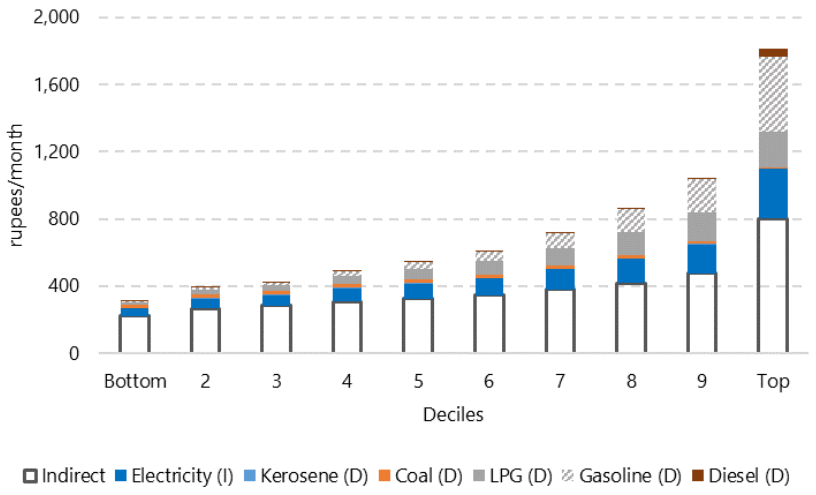
Total energy subsidies are the sum of direct and indirect effects. Appendix Table 2 shows average household budget shares of each energy product by income decile. Appendix Figure 2 shows household monthly total energy subsidy in rupees by income decile.

Appendix Table 2. Average Budget Shares for Energy Products
(Percent of total expenditure – all households)

Decile	electricity	PDS kerosene	kerosene	coal	LPG	petrol	diesel
1	1.9%	1.3%	0.5%	0.1%	0.4%	0.1%	0.0%
2	2.0%	1.0%	0.4%	0.1%	0.6%	0.3%	0.0%
3	2.1%	0.9%	0.4%	0.1%	0.7%	0.4%	0.0%
4	2.3%	0.8%	0.4%	0.1%	0.9%	0.6%	0.0%
5	2.4%	0.7%	0.3%	0.1%	1.1%	0.8%	0.0%
6	2.5%	0.6%	0.3%	0.1%	1.3%	1.1%	0.0%
7	2.7%	0.5%	0.3%	0.1%	1.5%	1.5%	0.1%
8	2.9%	0.4%	0.3%	0.1%	1.9%	2.1%	0.1%
9	3.0%	0.3%	0.4%	0.0%	2.1%	2.7%	0.1%
10	3.0%	0.1%	0.3%	0.0%	1.7%	3.7%	0.3%
Total	**2.5%**	**0.6%**	**0.4%**	**0.1%**	**1.3%**	**1.6%**	**0.1%**

Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure.

Appendix Figure 2. Average Household Direct (D) and Indirect (I) Effects of Energy Subsidy
(Rupees/month – all households)



Source: Authors' estimates based on Indian 2011–12 NSS.
Note: Deciles of per capita total expenditure.