Energy Subsidies in the Middle East: Issues & Implications

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&

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Structure of the Presentation

• The landscape
  – Petroleum products prices
  – Gas prices
  – Electricity prices

• Measurement of subsidies

• Rationale for cheap energy policy in the Middle East

• Domestic and international implications

• Political economy of policy reform

• Conclusions
Petroleum Product Prices

Middle Eastern Gasoline Prices 2010

Source: World Bank, DOE, Nymex, Deutsche Bank
Electricity Prices

Electricity Prices in US Cents (Residential), kwh

Low Gas Pricing Policy

Gas Feedstock Prices ($/MMBtu)

Source: Royal Dutch Shell plc
Measurement of Subsidies

• Identification of whether a subsidy exists requires:
  – Comparing price charged to domestic/industrial consumers with measure of cost

• More than one concept of cost
  – Average cost: refers to overall cost per unit of output (measured by sum of average fixed costs and average variable costs)
  – Marginal cost: refers to increment in total cost resulting from a unit change in output
    • Short-term and long-term marginal cost
  – Opportunity cost not related to production costs
    • Measures forgone value of resource when not utilised in its best alternative use e.g. its value in international trade if exported

• WTO Definition
  – Compatible with WTO rules

• Not straightforward which concept to use in context of oil/gas exporters and joint products

• Regardless of measure used wide use of subsidies in ME
**Rationale For Energy Subsidies**

- One of the various channels for rent distribution for resource rich economies
  - Channels of rent distributions various (transfers, pensions, employment benefits, etc.)
- Tool for industrialisation and diversification
  - Diversify economy and generate/protect local employment opportunities
  - Enhance energy intensive industries’ export competitiveness
- Protect income of poor households
  - Increases in energy price would have a direct and indirect income effect exacerbating poverty
- Avoid inflationary pressures
  - International increases in prices of key commodities such as energy and food can induce inflationary pressures
  - Many currencies pegged to the US dollar (little room for manoeuvring)
- Political considerations
  - Subsidies entrenched in institutional barriers and lock-in mechanisms that make it difficult to abolish them
Evaluating Energy Subsidies in the Middle East

- Subsidies distort relative prices
  - Result in inefficient allocation of resources
  - ‘Over-consumption’ or ‘wasteful consumption’ “where people consume in excess of any reasonable definition of need”
  - Most energy intensive region in world
- Energy subsidies regressive & result in the bulk of benefits accruing to households in high income groups (Transfer inefficiency)
- Cheap energy, economic choices and energy policy
  - Example of Saudi Arabia
- Create a price wedge & encourages smuggling
  - “A private Saudi petrochemical company has been accused of smuggling petroleum products from King Fahd Industrial Port in Yanbu to France and other European countries for more than 11 years” (Arabian Oil and Gas, Feb 2010)
- Limits investment in infrastructure
  - Fuels subsidies result in large losses for producers or local distributors & undermines incentives to extend energy infrastructure
- Price caps can result in physical shortages
  - Resort to an administrative rationing system which can be costly, inefficient and open to abuse (LPG cylinders in Egypt)
Most Energy Intensive Region in World

Energy Intensity (KOE/GDP per capital 2005 (PPP))


Source: ENERDATA
Fastest Growth in Energy Consumption

Compounded Annual Growth rate in Electricity Consumption (2000-2009)


Source: ENERDATA
## Subsidies in Iran: Regressive

<table>
<thead>
<tr>
<th>Deciles</th>
<th>Per capita expenditures</th>
<th>Subsidy per capita (rials per year)</th>
<th>Share in total subsidy (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Bread</td>
<td>Gasoline</td>
</tr>
<tr>
<td>1</td>
<td>3,180,452</td>
<td>537,625</td>
<td>146,993</td>
</tr>
<tr>
<td>2</td>
<td>5,561,280</td>
<td>569,989</td>
<td>200,708</td>
</tr>
<tr>
<td>4</td>
<td>9,117,613</td>
<td>588,636</td>
<td>334,966</td>
</tr>
<tr>
<td>5</td>
<td>11,165,132</td>
<td>581,957</td>
<td>357,835</td>
</tr>
<tr>
<td>7</td>
<td>16,689,699</td>
<td>569,847</td>
<td>582,297</td>
</tr>
<tr>
<td>8</td>
<td>21,211,878</td>
<td>573,981</td>
<td>815,107</td>
</tr>
<tr>
<td>9</td>
<td>28,695,934</td>
<td>560,607</td>
<td>1,072,590</td>
</tr>
<tr>
<td>10</td>
<td>58,536,508</td>
<td>569,671</td>
<td>1,797,677</td>
</tr>
</tbody>
</table>

### Average

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capita expenditures</td>
<td>17,499,446</td>
<td>572,145</td>
<td>603,871</td>
<td>557,194</td>
<td>646,888</td>
</tr>
<tr>
<td>Share in total subsidy</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Salehi-Isfahani (2010)
Distributional Incidence: Evidence from Egypt & Yemen

Distribution of Subsidies of Petroleum Products (Percentage of Subsidy received by each quintile)

Diesel Subsidies by Income Decile

<table>
<thead>
<tr>
<th>Income decile</th>
<th>Subsidy consumption [liters/year]</th>
<th>total [10^6 yr]</th>
<th>captured by each decile [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 0-9000</td>
<td>5</td>
<td>93</td>
<td>1%</td>
</tr>
<tr>
<td>2 9001-12000</td>
<td>3</td>
<td>52</td>
<td>1%</td>
</tr>
<tr>
<td>3 12001-15000</td>
<td>21</td>
<td>427</td>
<td>4%</td>
</tr>
<tr>
<td>4 15001-19800</td>
<td>18</td>
<td>375</td>
<td>4%</td>
</tr>
<tr>
<td>5 19801-22500</td>
<td>29</td>
<td>597</td>
<td>6%</td>
</tr>
<tr>
<td>6 22501-27000</td>
<td>15</td>
<td>305</td>
<td>3%</td>
</tr>
<tr>
<td>7 27001-33000</td>
<td>57</td>
<td>1147</td>
<td>12%</td>
</tr>
<tr>
<td>8 33001-42700</td>
<td>62</td>
<td>1266</td>
<td>13%</td>
</tr>
<tr>
<td>9 42701-61000</td>
<td>84</td>
<td>1699</td>
<td>17%</td>
</tr>
<tr>
<td>10 61001&gt;0</td>
<td>192</td>
<td>3899</td>
<td>40%</td>
</tr>
<tr>
<td>total</td>
<td>486</td>
<td>9861</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: World Bank
Energy and Industrialisation in Saudi Arabia

• Rapid increase in electricity demand & resort to burning crude oil/fuel oil in power generation and water desalination plants while diverting natural gas to the petrochemical sector

• Does the fact that Saudi Arabia sits on large spare capacity alter conclusion?
  – Crude oil used in power generation is not destined for exports
  – Export price not the benchmark that should be used in measuring opportunity cost
  – Limitations
Limitations of Argument

• Spare capacity fulfils key role in promoting SA role in energy market
  – Reduction in spare capacity due to an increase in domestic consumption implies a positive (though difficult to measure) opportunity cost

• Does not take into account inter-temporal choices
  – Two options: either to extract it today or to keep it in ground for future extraction
  – Any amount extracted today not available for extraction in future
  – Benchmark in presence of spare capacity is future price of oil or long term marginal cost of oil production

• Implications:
  – Industrialisation through provision of cheap energy entail a cost
    • Do the benefits (diversification, employment opportunities) justify the cost? This remains unclear; need of further research
  – Is diversification policy sustainable in the long run?
Reform of Energy Subsidies

• Energy pricing directly interlinked with economic policies in some countries
  • Major driver of reform driven by competitiveness issues

• Energy subsidies unsustainable in some poorer Arab countries
  – Case of Egypt

• Abolishing fuel subsidies increases poverty incidence & socially and politically undesirable
  – Must be accompanied by measures to protect poor households from any decline in real income
  – Developing social safety nets and targeted transfers & capability varies across countries

• Transfer programmes feasible
  – Case of Kuwait
  – Purpose is not to re-distribute income

• Egypt and Yemen: Implementation of targeted programmes difficult in practice
### Unsustainable

<table>
<thead>
<tr>
<th>Year</th>
<th>% of Total Expenditures</th>
<th>% of GDP</th>
<th>% of Social Spending</th>
<th>% of Defense Spending</th>
<th>% of Education Spending</th>
<th>% of Health Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2003</td>
<td>10.8</td>
<td>4.1</td>
<td>84.7</td>
<td>121.1</td>
<td>78.2</td>
<td>211.84</td>
</tr>
<tr>
<td>2003-2004</td>
<td>13.2</td>
<td>4.8</td>
<td>94.8</td>
<td>148.6</td>
<td>95.6</td>
<td>267.9</td>
</tr>
<tr>
<td>2004-2005</td>
<td>11.2</td>
<td>4</td>
<td>71.6</td>
<td>136.5</td>
<td>78.3</td>
<td>276.71</td>
</tr>
<tr>
<td>2005-2006</td>
<td>16.8</td>
<td>7.2</td>
<td>84.7</td>
<td>256.4</td>
<td>161.9</td>
<td>487.8</td>
</tr>
<tr>
<td>2006-2007</td>
<td>14.6</td>
<td>6.4</td>
<td>73.7</td>
<td>231.2</td>
<td>146</td>
<td>439.56</td>
</tr>
</tbody>
</table>

Source: Khattab (2007), Table 8.
Government the Main Employer of Nationals in GCC

Share of National Labour Force Employed in Government in GCC Countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Kuwait</th>
<th>Qatar</th>
<th>Oman</th>
<th>Bahrain</th>
<th>United Arab Emirates</th>
<th>Saudi Arabia</th>
</tr>
</thead>
</table>

Note: The bar chart shows the percentage of national labour force employed in the government for the years 1999, 2001, 1996, 2001, 1995, and 1999 for Kuwait, Qatar, Oman, Bahrain, United Arab Emirates, and Saudi Arabia, respectively.
Conclusions

• Reforming energy subsidies priority for ME countries regardless of developments in international agenda
• Energy subsidies unsustainable in some poorer ME countries; create series of distortions; limit policy options
• Energy pricing directly interlinked with economic policies
• Not most effective tool for distributing rents
• Energy subsidies regressive & not very effective tool in tackling poverty in ME
  – Adopt a broader approach in tackling poverty through investing in infrastructure, developing rural areas, etc....
• Abolishing fuel subsidies increases poverty incidence & socially and politically undesirable
  – Must be accompanied by measures to protect poor households from any decline in real income
  – Developing social safety nets and targeted transfers & capability varies across countries