



REFORMS OF PUBLIC FINANCE IN EGYPT: ENERGY SUBSIDIES

Price Subsidies in Egypt: Alternatives for Reform

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February 1, 2012

Four Dimensions

- Subsidies and the state of public finance.
- Subsidies and social equity.
- Importance of reforms to fiscal space, sustainability and growth.
- Alternatives to reduce waste of government resources and achieve better equity.



Presentation Outline

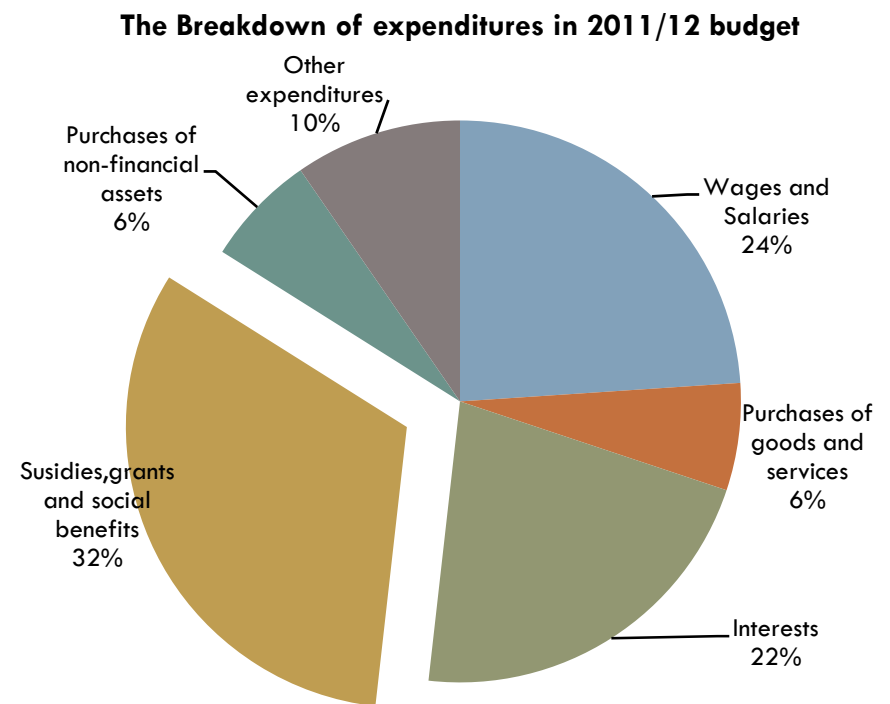
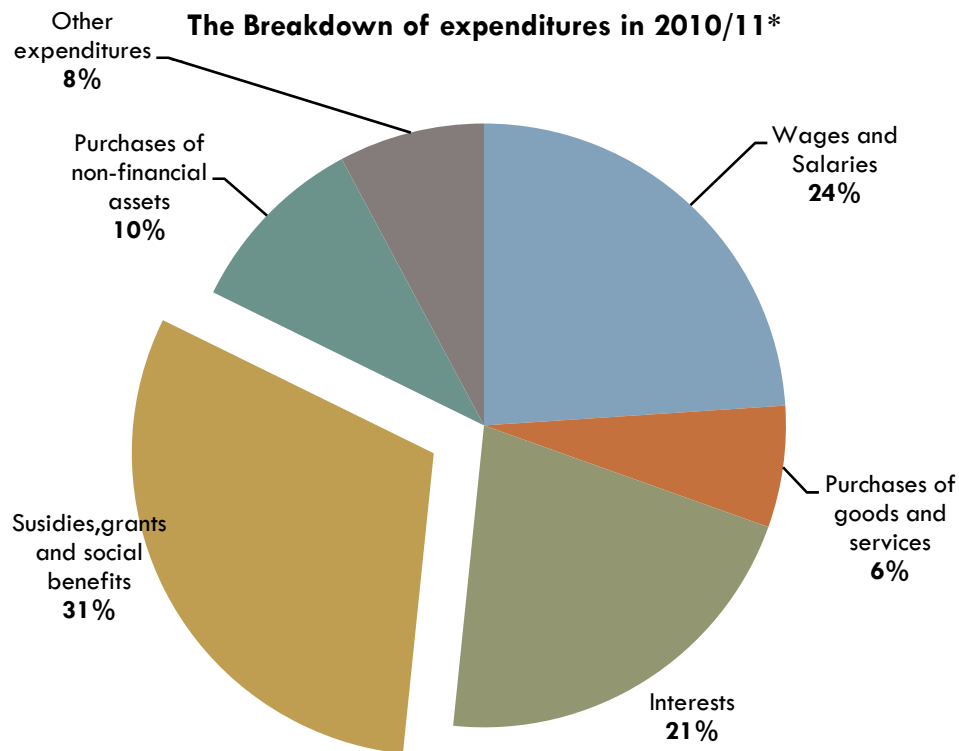
- The state of public finance in Egypt: *Emphasis on subsidies.*
- Petroleum subsidies.
- Implications for waste and inefficiency
- Implications for Inequity
- Reform Strategies
- Concluding remarks.



Developments in expenditure composition over time

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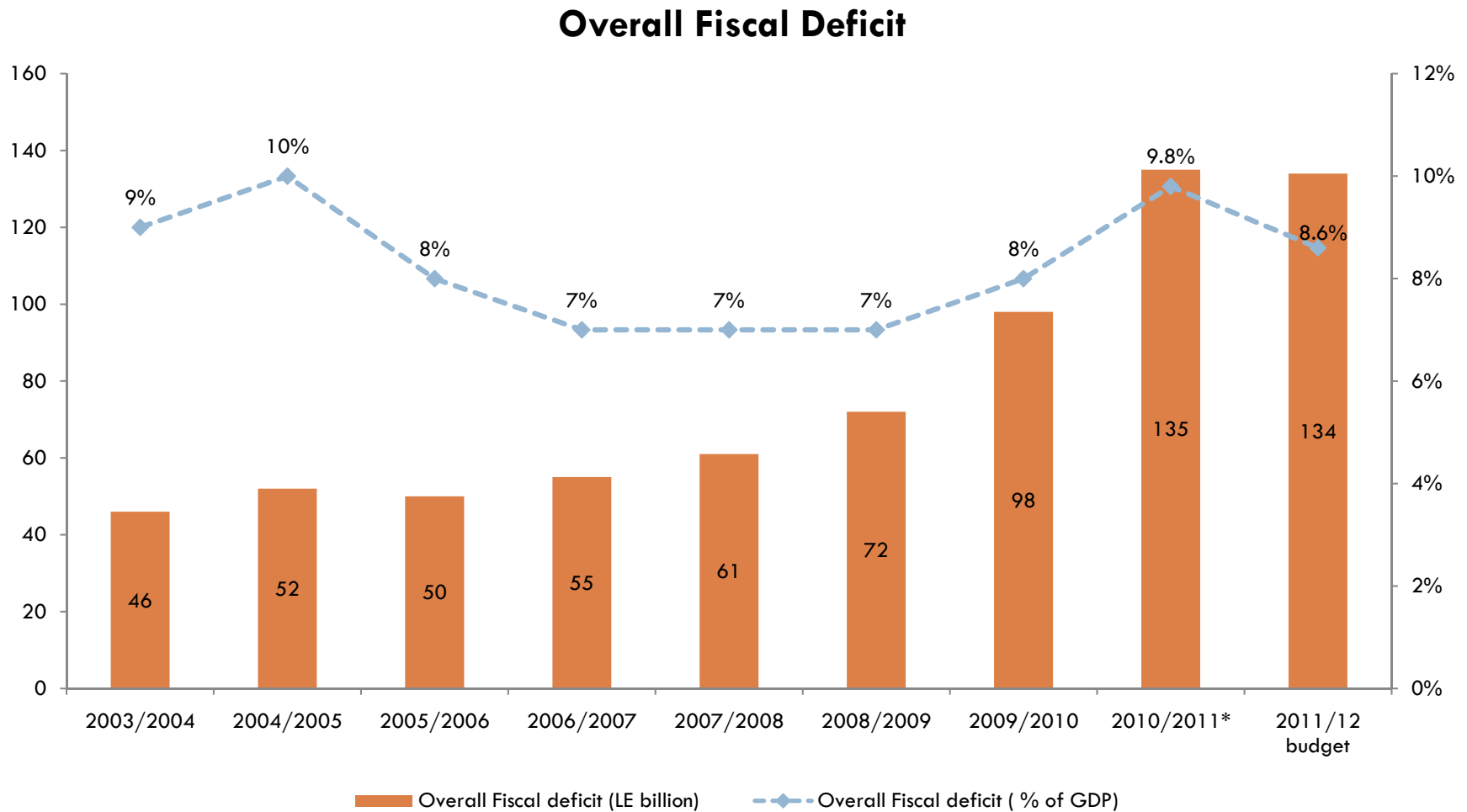
Subsidies had the largest share of expenditures in 2010/11, in addition to notable increases in expenditures on wages and salaries and the cost of servicing existing debt, i.e. interest payments.



*Preliminary

On the heels of successful consolidation efforts, the deficit has surged more recently

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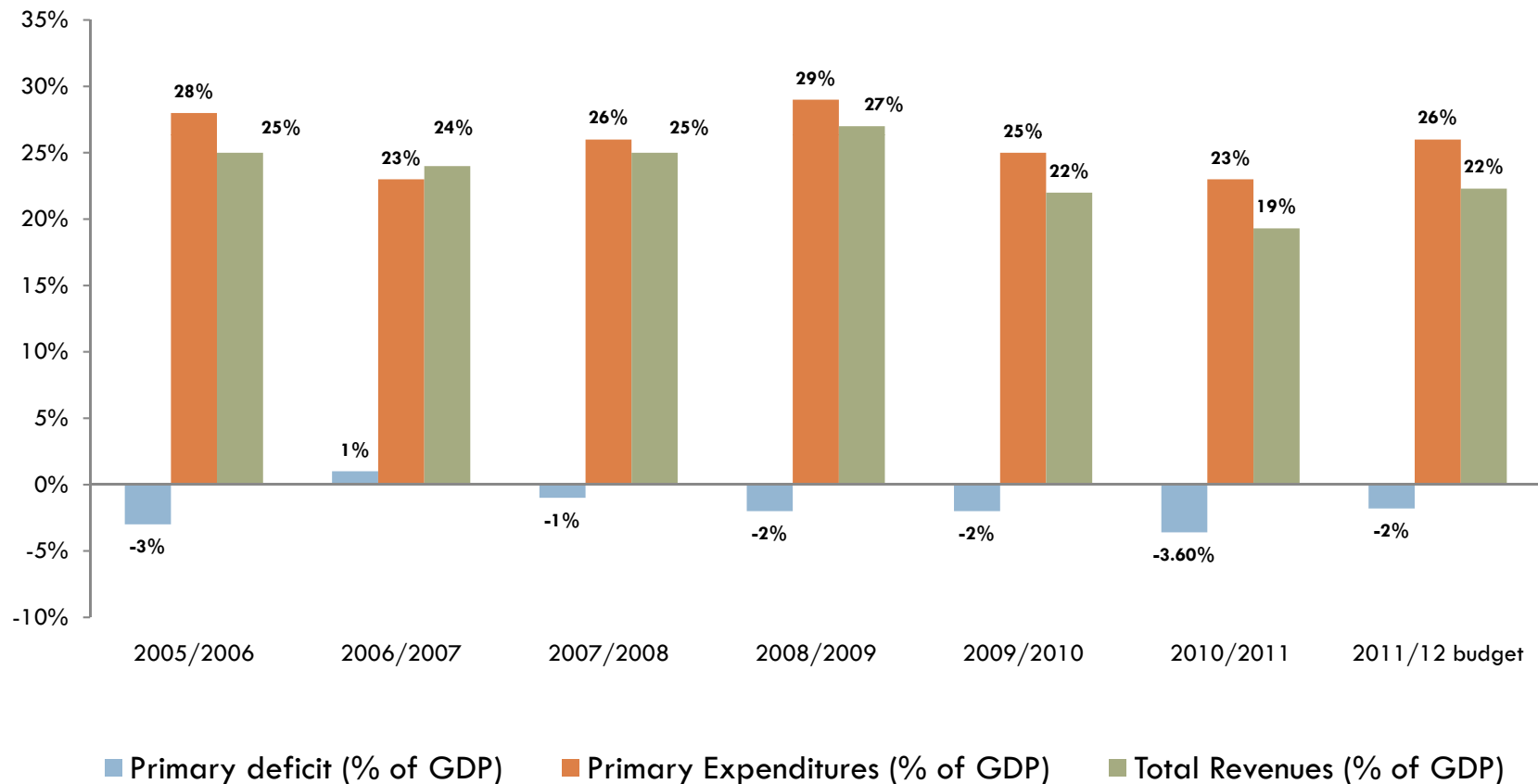


Source: Ministry of Finance

The increase in primary expenditures surpassed that of revenues, widening the primary deficit recently

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Primary deficit, primary expenditures , and total revenues (% of GDP)



Source: Ministry of Finance

Underlying the increase in primary expenditures has been a recent surge in subsidies and grants

7

Primary deficit, primary expenditures and subsidies (% of GDP)



■ Primary deficit (% of GDP) ■ Primary expenditures (% of GDP) ■ Subsidies, grants and social benefits (% of GDP)

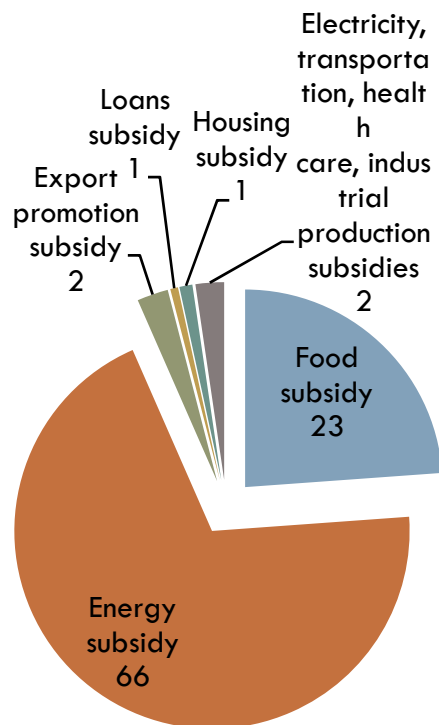
Source: Ministry of Finance

Breakdown of subsidies by category

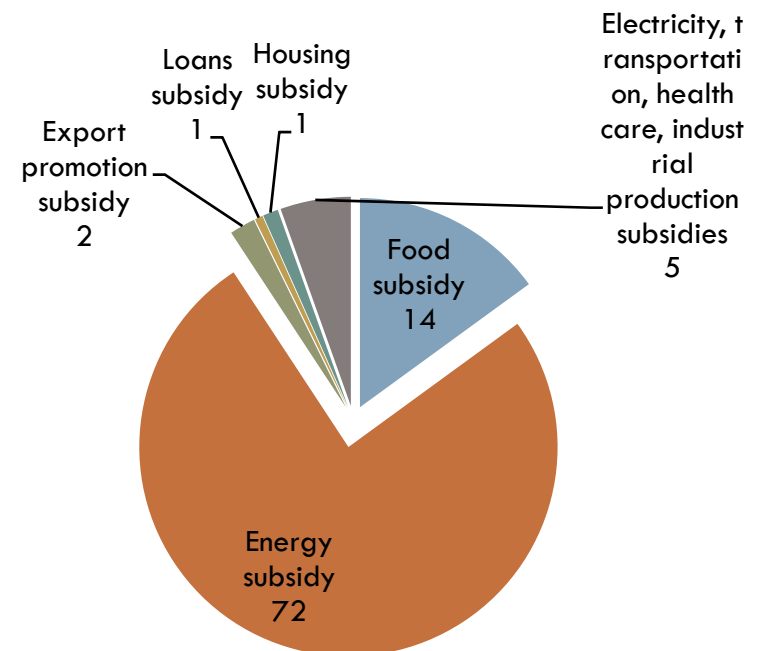
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More than two thirds of total subsidies are for fuel products while food subsidy is less than one quarter

The classification of subsidies in 2010/11



The classification of subsidies in 2011/12 budget



What is the size of petroleum subsidies?

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Costs, prices and subsidies of petroleum products (2008/09)

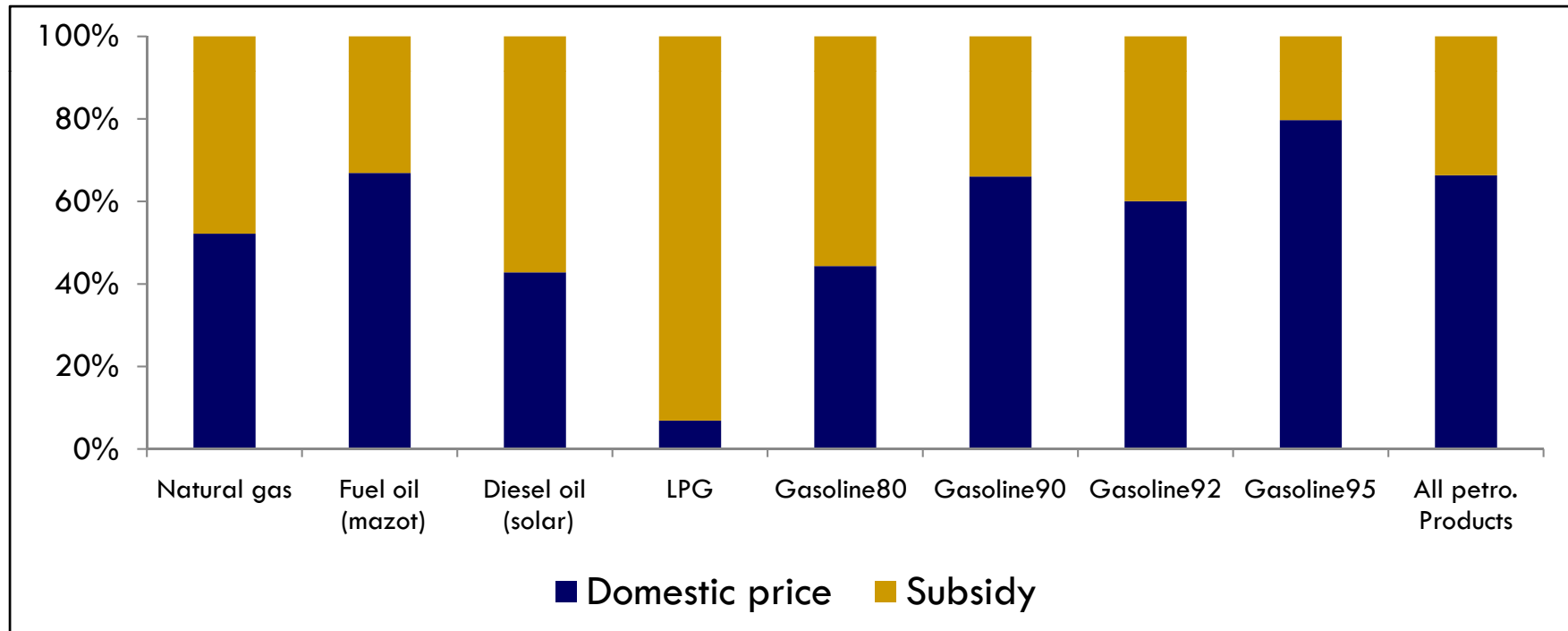
| Unit | Petroleum Products | Domestic price (in LE) | Actual Cost (in LE) | Subsidy per unit (calculated as actual cost minus domestic price) (in LE) | Share of subsidy to cost |
|----------|---|---------------------------|------------------------|---|--------------------------|
| M3 | Natural gas (for electricity) | 0.24 | 0.46 | 0.22 | 48% |
| Ton | Fuel oil (mazot) | 1000 | 1495 | 495 | 33% |
| Liter | Diesel oil (solar) | 1.1 | 2.57 | 1.47 | 57% |
| Cylinder | LPG | 2.5 | 36.16 | 33.66 | 93% |
| Liter | Gasoline80 | 0.9 | 2.03 | 1.13 | 56% |
| | Gasoline90 | 1.75 | 2.65 | 0.9 | 34% |
| | Gasoline92 | 1.85 | 3.08 | 1.23 | 40% |
| | Gasoline95 | 2.75 | 3.45 | 0.7 | 20% |
| | Weighted Average of all petroleum products | 240.6 | 122.10 | 118.5 | 32.67% |

Source: People's Assembly , Plan and Budget Committee (March 2010). Final Accounts for fiscal year 2008/2009

What is the size of petroleum subsidies?

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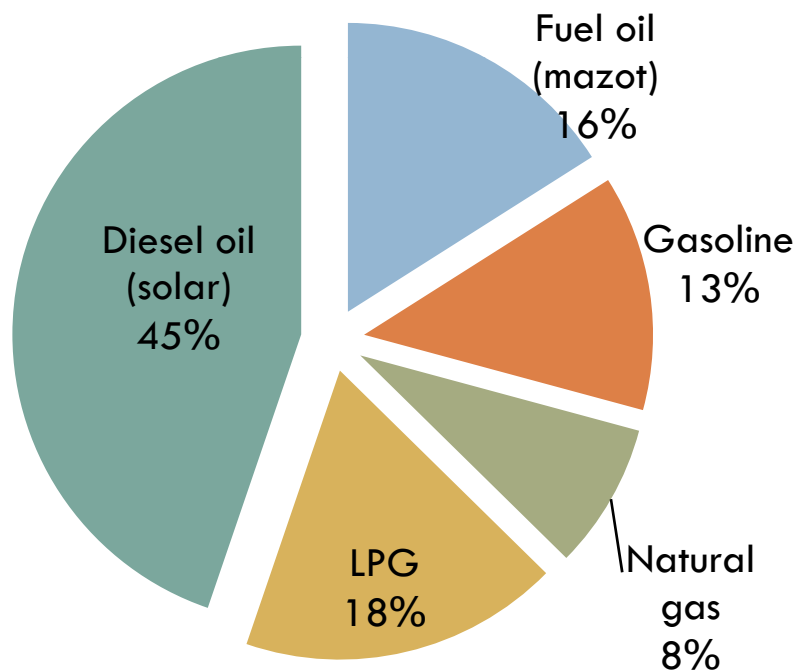
Ratios of domestic prices and subsidies to actual costs of petroleum products in 2008/09



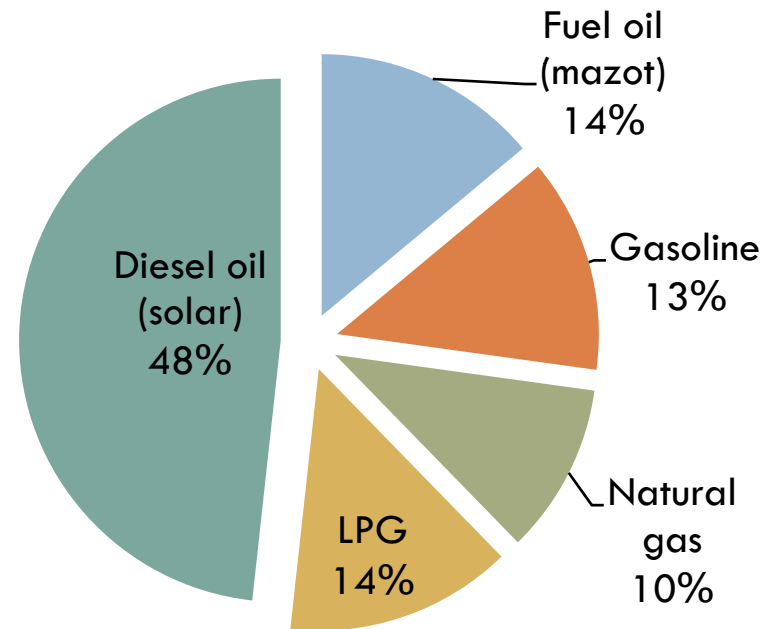
Note: In the last column (all petroleum products), the subsidy, and the domestic price, are each calculated as a weighted average. Weights are taken as each product's share in total consumption of petroleum products.

What is the size of petroleum subsidies?

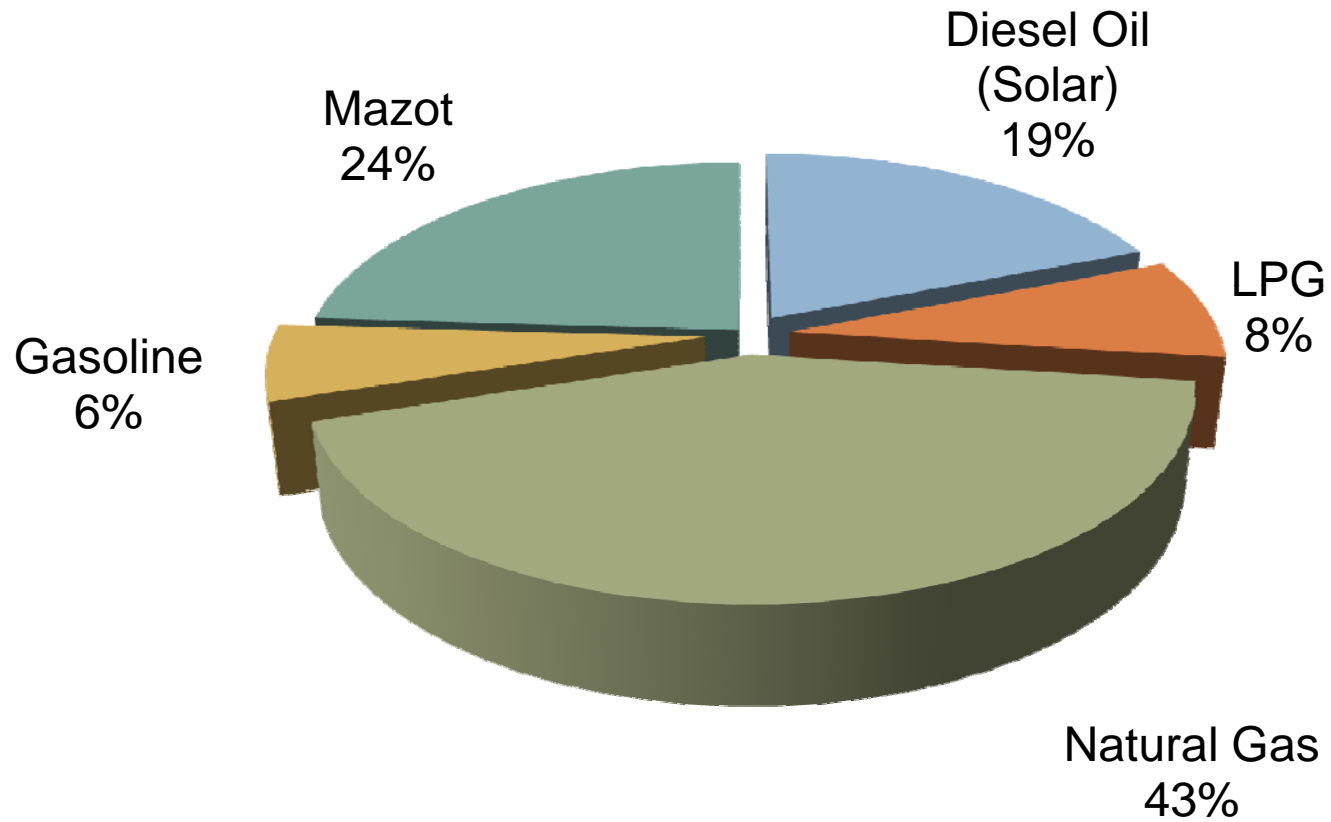
The structure of subsidies of petroleum products (2010/11)



The structure of subsidies of petroleum products (2011/12 budget)



Energy Consumption (2006/07)



Source: Abouleinein, El-Laithy, and Kheir-El-Din (2009); People's Assembly, Final Accounts, Plan and Budget Committee, for Fiscal Year 2008/2009.

What is the size of petroleum subsidies?

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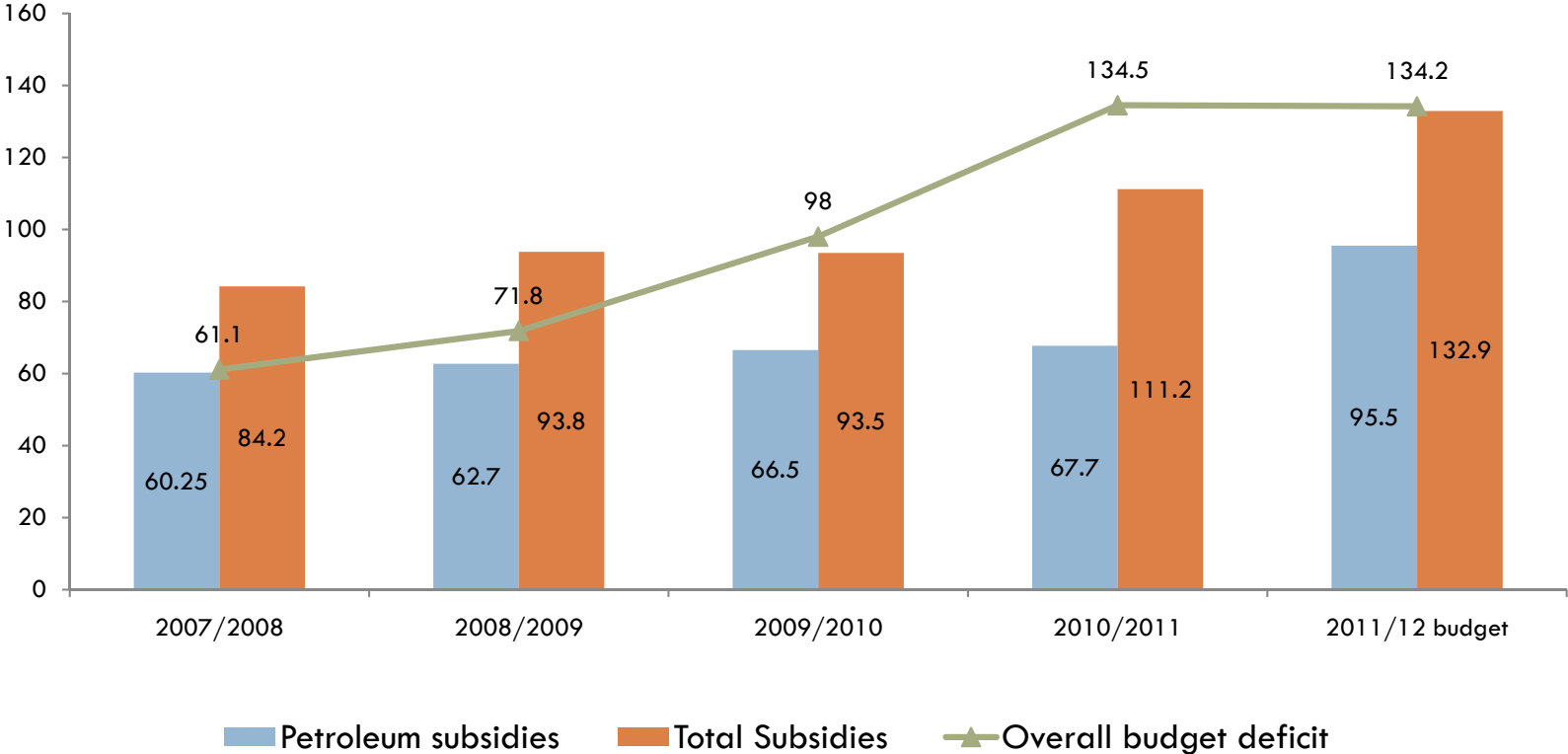
Petroleum subsidy: various indicators

| | 2007/2008 | 2008/2009 | 2009/2010 | 2010/2011* | 2011/2012 (Budget) |
|--------------------------------------|-----------|-----------|-----------|------------|-----------------------|
| Petroleum Subsidy (in billion LE) | 60.25 | 62.7 | 66.5 | 67.7 | 95.5 |
| Share in total subsidies (%) | 71.55 | 66.83 | 71.1 | 60.9 | 71.9 |
| Share in total expenditures (%) | 21.34 | 17.84 | 18.11 | 16.84 | 19.5 |
| Share in total revenues (%) | 27.21 | 22.20 | 24.81 | 25.51 | 27.3 |
| Share of GDP (%) | 6.73 | 6.04 | 5.51 | 4.93 | 6.2 |

Source: Ministry of Finance

The overall budget deficit widened overtime, along with increasing subsidies, especially petroleum subsidies.

Subsidies and budget deficit

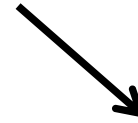


Source: Ministry of Finance

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Petroleum subsidies Impacts on the economy

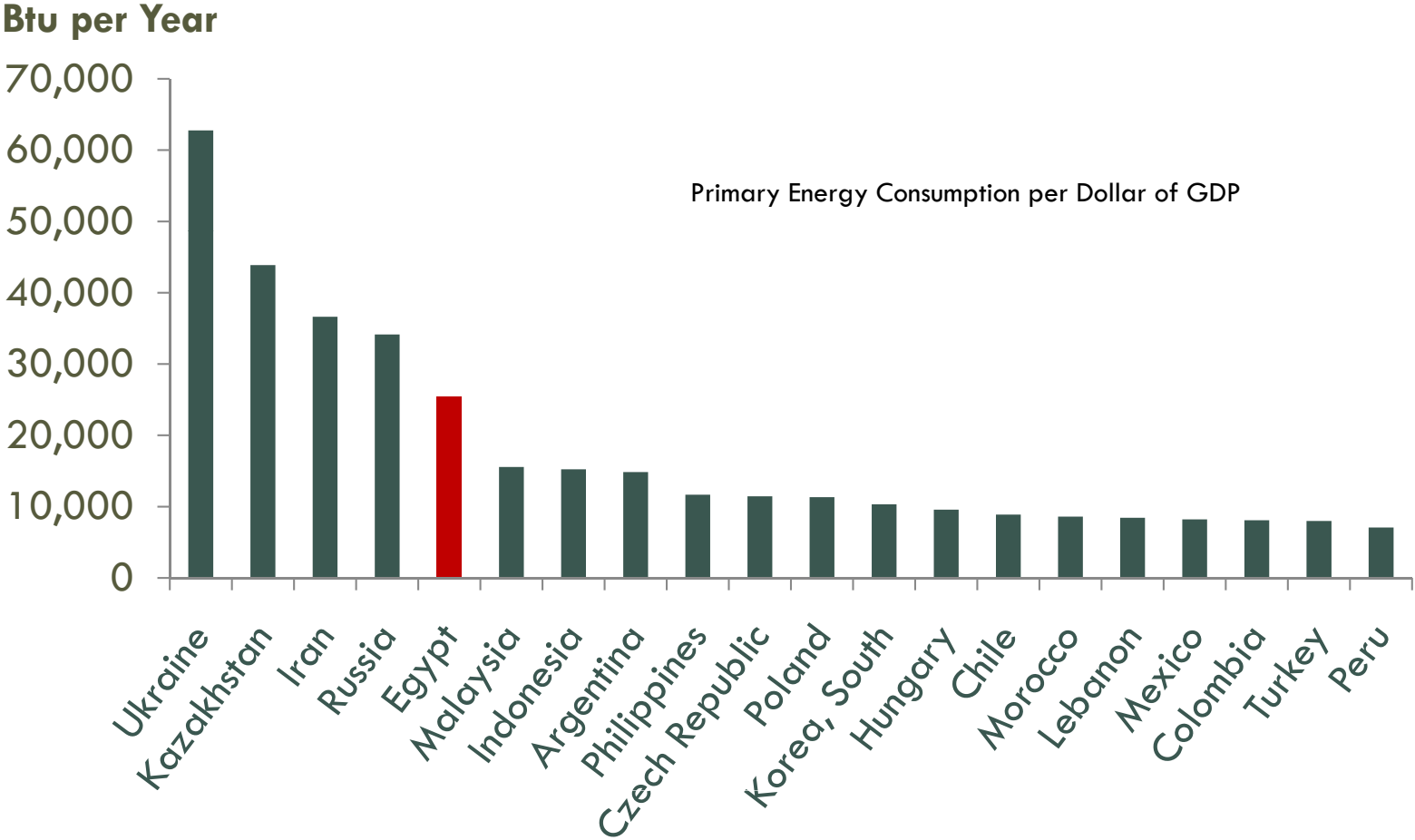
ENERGY SUBSIDIES



***Induce capital and
energy intensive
industries***

***Discourage labor
absorption
industries***

Egypt has high energy intensity



Source: Herrera,2010

Reflected in low labor share in national income

Compensation
of employees

+

Imputed Labor
Compensation of
Self-employed

+

Estimated income of
non-paid family
workers

GDP

-

Net indirect taxes

=

33% in
2004

32% in
2007

Consequently, the economy needs higher growth rates to absorb same labor force growth.

| Capital Share | Output Growth |
|---------------|---------------|
| 0.3 | 3.4% |
| 0.4 | 3.5% |
| 0.5 | 3.6% |
| 0.6 | 3.7% |
| 0.7 | 3.8% |

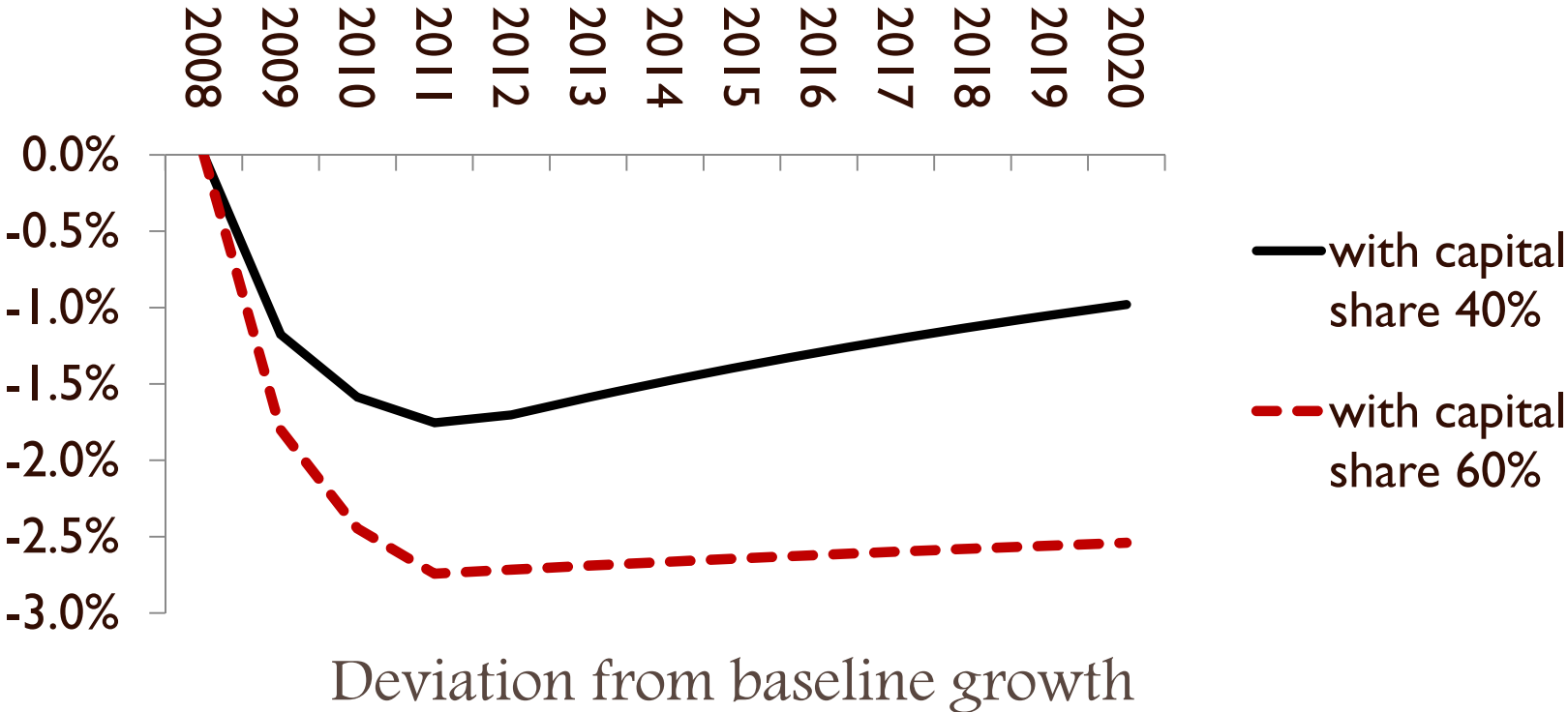
Energy Subsidies: Implications



Higher Capital Intensity



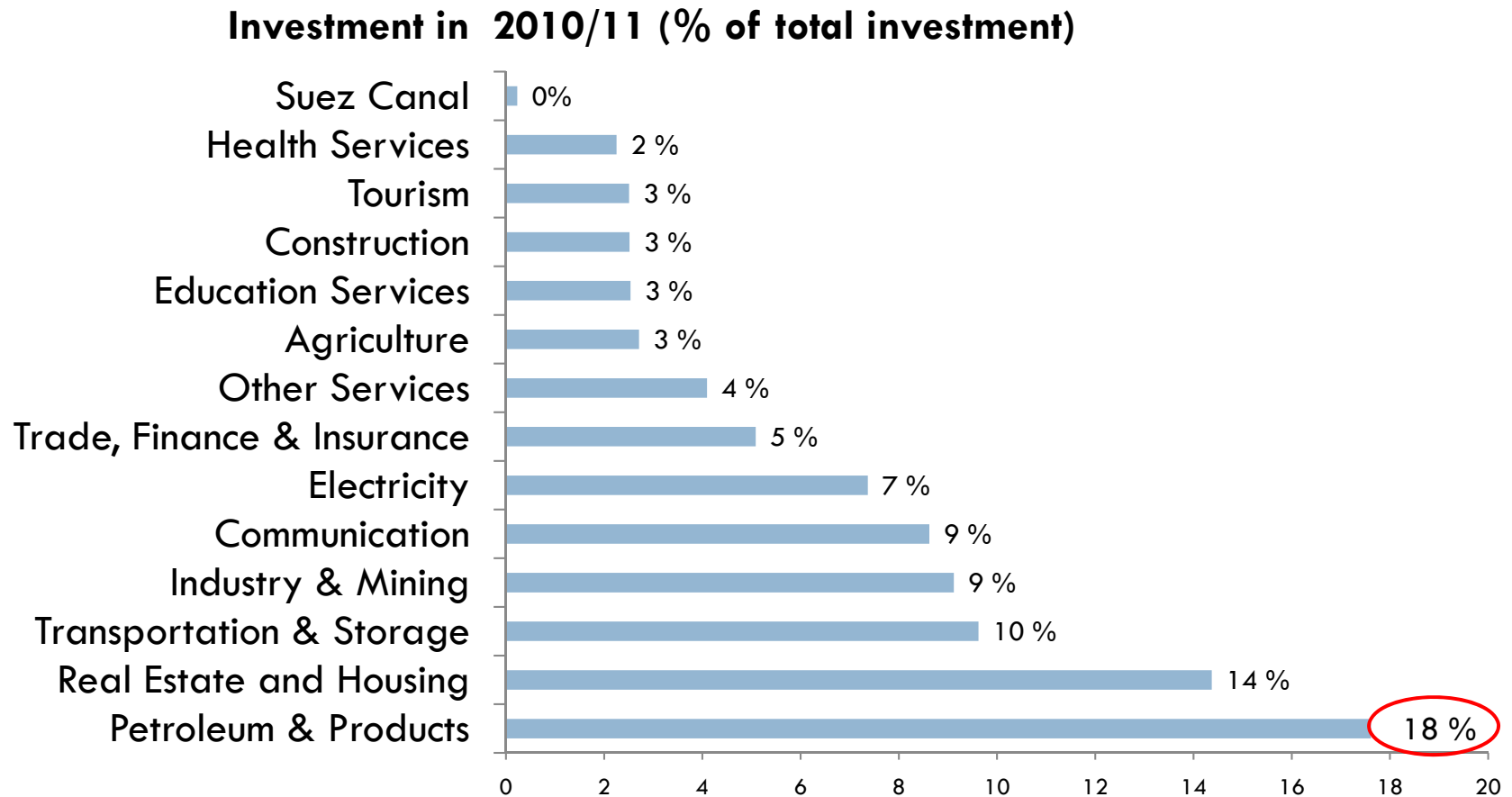
Magnifies impact of investment shocks



Source: Herrera, 2010

Energy subsidies affect resource allocation

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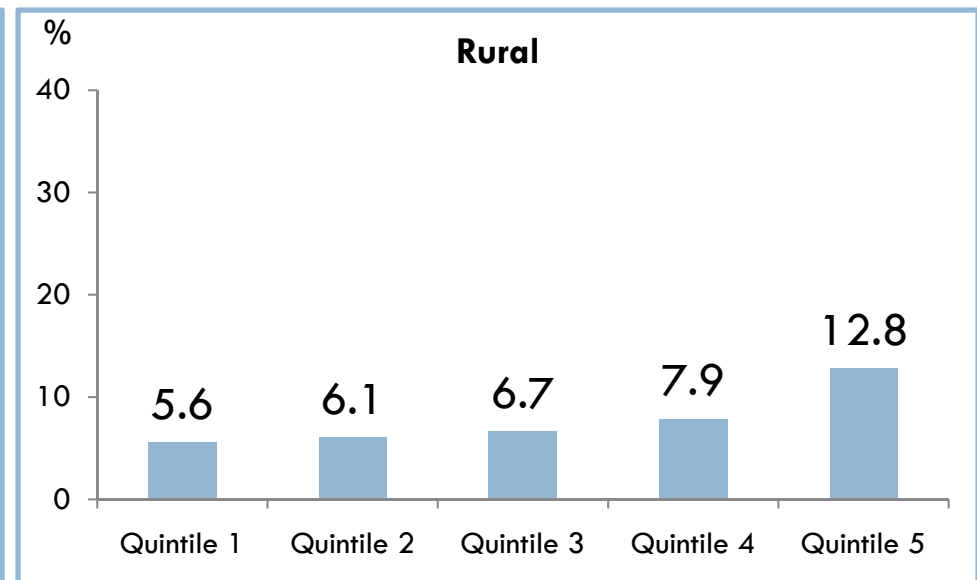
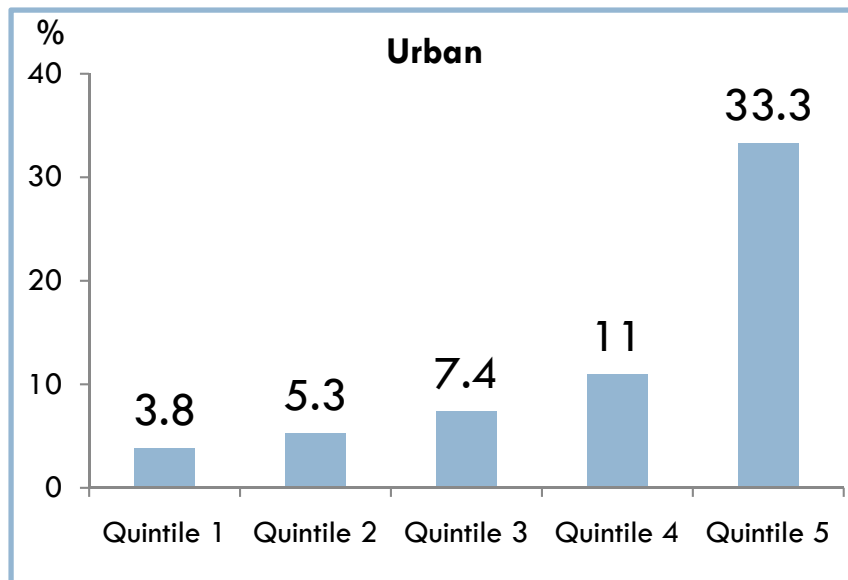
Source: Ministry of Planning

Who benefits from the petroleum subsidy?

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Distribution of petroleum subsidy by expenditure quintiles in urban and rural Egypt

- The richest urban quintile benefits from 33 percent of these subsidies, while the poorest urban quintile benefits from only 3.8%.
- Raising the price of natural gas and fuel oil (mazot) affects the lower expenditure quintiles more. Both (Natural gas and mazot) account for only 24% of total petroleum subsidies.



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Energy Subsidy Reform

GAINS

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Economic Benefits

Reduction of wasteful
consumption and
congestion + efficient
allocation of resources

Environmental Impact

Reduction of GHG
emissions
+ incentive for
renewable energy

Short-Term Impact

Impact on
annual GDP
growth
0.4 - 1.4 %

Impact on
income

**Gains from
energy
efficiency**

**Uses of
government
savings ???**

**Initial effect
on top
quintile
7.0%
reduction in
income**

**Effect on
bottom
quintile
4.0%
reduction in
income**

Structural Obstacles to Reform

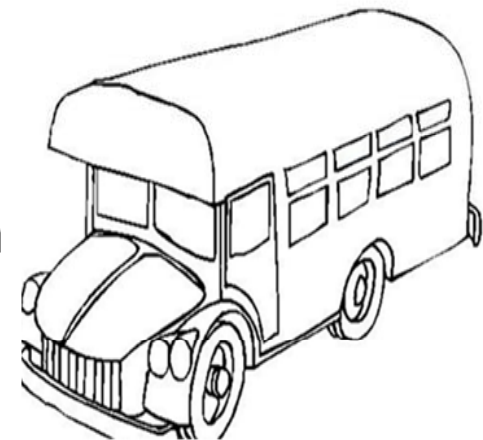
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Vested Interest



Inadequate
Public
Transportation
and Logistics



The Impact of Phasing Out Petroleum Subsidies in Egypt

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Subsidization of Petroleum Products in Egypt: Main Issues

- What is the expected impact of phasing out petroleum subsidies?
- What can we learn from international experiences?

What is the impact of phasing out petroleum subsidies on consumer prices?

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- Estimation of the direct and indirect impacts of phasing out subsidies of various petroleum products was done using input/output tables for 2006/2007 data (23 sectors consolidated into 7).
- Estimation of these impacts depends on:
 - The increase in the price of each petroleum product.
 - The weight of each product in the total cost structure of the various sectors.
 - The weight of each product in the households' final consumption.
 - The pattern of linkages among the various sectors.

What is the impact of phasing out petroleum subsidies on consumer prices?

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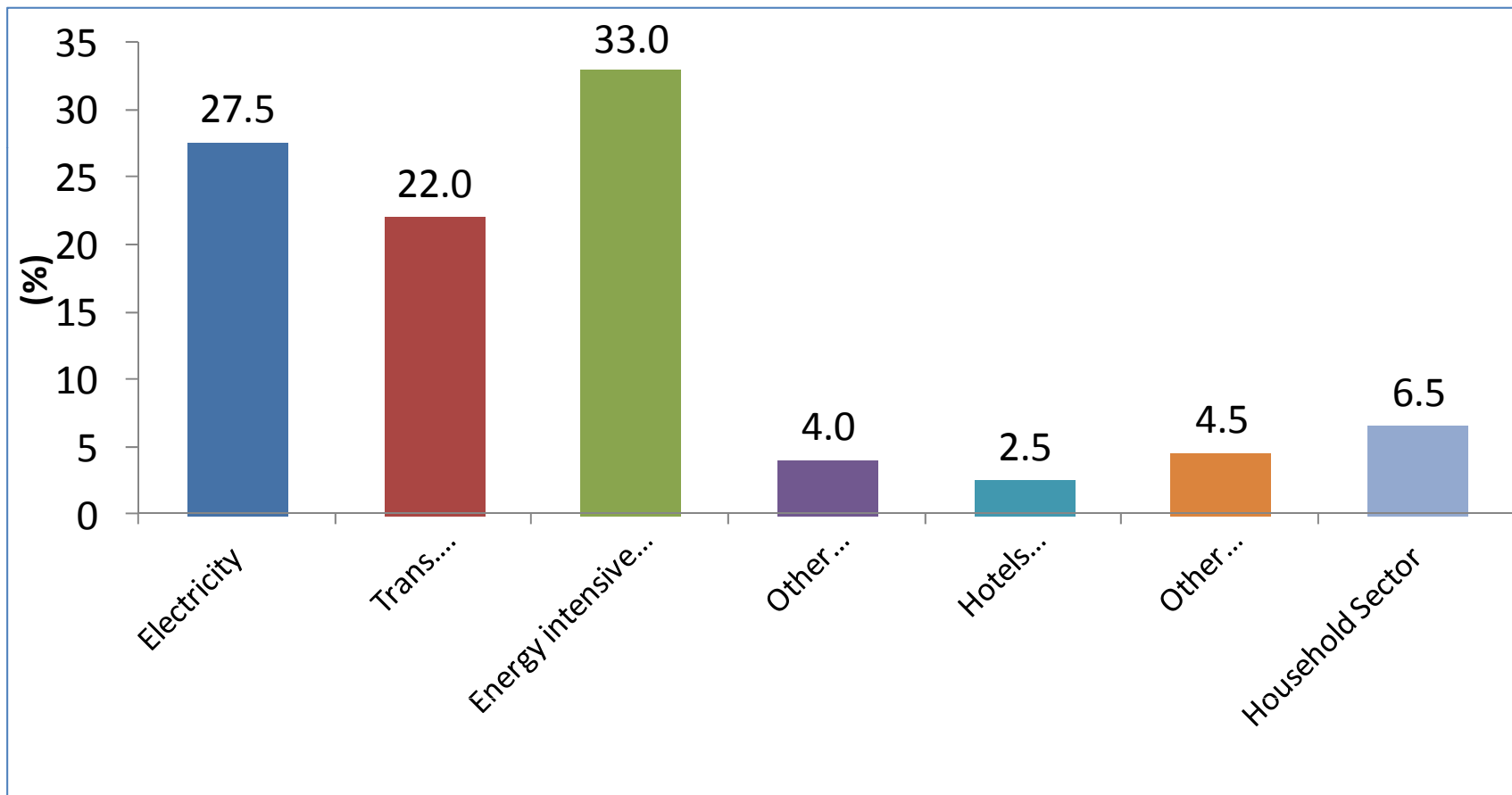
- **The sectors that are represented in the input/output analysis consist of:**
 - 1) Electricity
 - 2) Energy intensive industries
 - 3) Other industries
 - 4) Transport and communications
 - 5) Hotels and restaurants
 - 6) Construction
 - 7) Other Services

That, in addition to the petroleum products (natural gas, fuel and diesel oil, LPG and gasoline).

What is the impact of phasing out petroleum subsidies on consumer prices?

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The share of each sector in total consumption of petroleum products



Source: Abouleinein et al. (2009) based on the updated Input-Output Table 2006/2007

What is the impact of phasing out petroleum subsidies on consumer prices?

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Increases in prices of petroleum products under two alternative scenarios

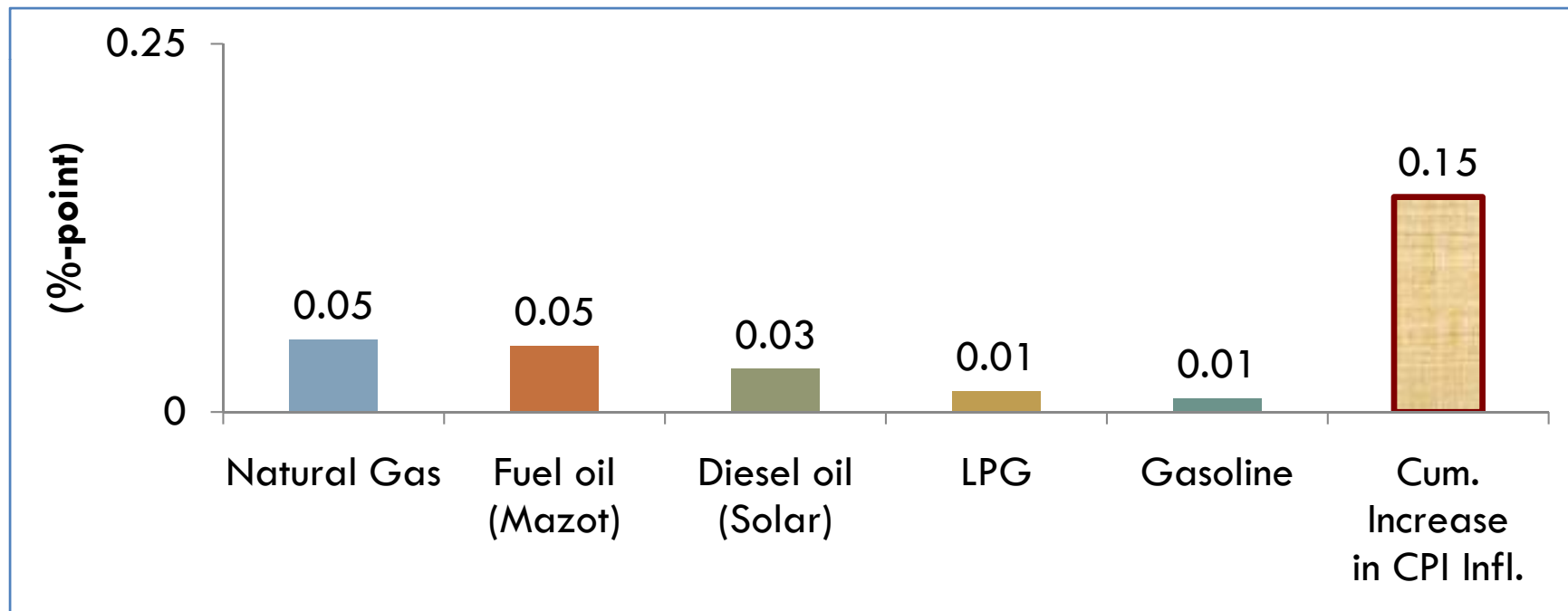
| Unit of measurement | Petroleum Product | Current price of petroleum products (in LE) | Scenario 1: Increase in prices of petroleum products by 10% | | Scenario 2: Adjusting prices according to actual domestic cost (such that subsidy = 0) | |
|---------------------|--------------------|---|---|---|--|---|
| | | | Percent Increase | Calculated price after increase (in LE) | Percent Increase | Calculated price after removing subsidy (in LE) |
| M3 | Natural Gas | 0.24 | 10% | 0.264 | 91.7%* | 0.46 |
| Ton | Fuel oil (mazot) | 1000 | 10% | 1100 | 49.5% | 1495 |
| Liter | Diesel oil (solar) | 1.1 | 10% | 1.21 | 133.64% | 2.57 |
| Cylinder | LPG | 2.5 | 10% | 2.75 | 1346.4% | 36.16 |
| Liter | Gasoline | 1.44 | 10% | 1.584 | 73.09% | 2.5 |

*Here we consider phasing out subsidy of natural gas used for electricity only. That is because electricity is the main consumer of natural gas. The price of gasoline is a weighted average.

What is the impact of phasing out petroleum subsidies on consumer prices?

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The contribution to CPI inflation if the price of each petroleum product is increased separately by 1%



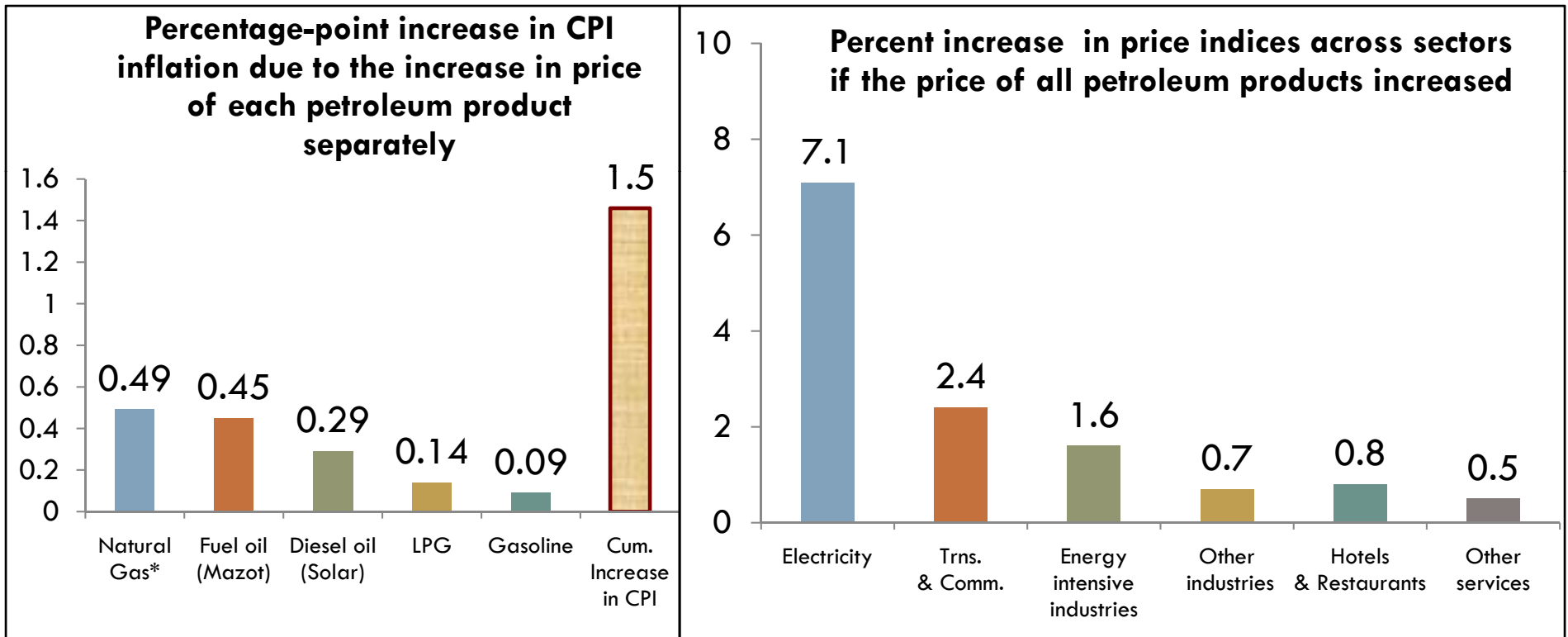
Note: Last column (cumulative increase in CPI) is the %-point increase in CPI if prices of **all** petroleum products was increased by 1%.

Source: Calculated based on Abouleinein et al. (2009)

What is the impact of phasing out petroleum subsidies on consumer prices?

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Scenario 1: Raising the price of each petroleum product by 10%



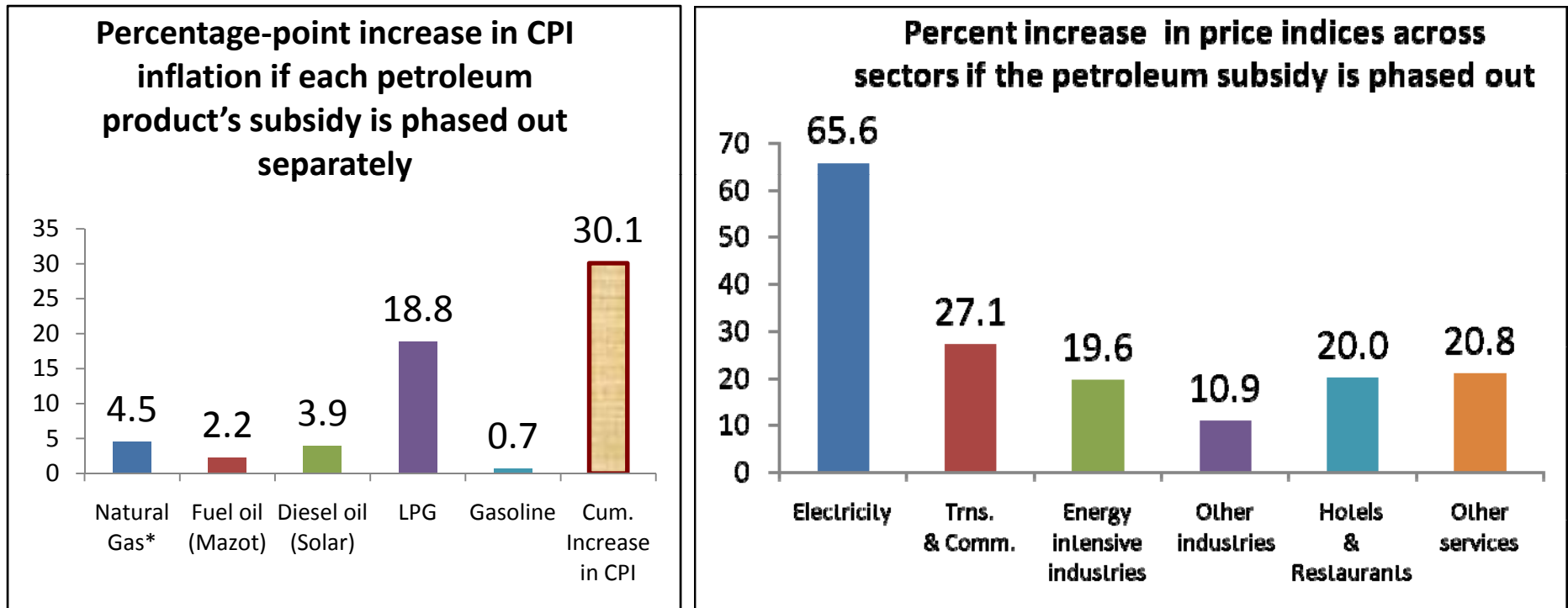
Source: Abouleinein et al. (2009)

Note: Last column of the left panel (cumulative increase in CPI) is the %-point increase in CPI inflation if prices of *all* petroleum products are increased by 10%.

What is the impact of phasing out petroleum subsidies on consumer prices?

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Scenario 2: Removing subsidy of each petroleum product



Note: *Natural Gas is for electricity only.

Source: Calculated based on Abouleinein et al. (2009)

Note: Last column of the left panel (cumulative increase in CPI) is the %-point increase in CPI inflation if all petroleum subsidies are removed completely.

Developing a reform strategy I

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- Successful strategy needs to prepare population for reforms
 - ▣ Identify clearly the size of the fiscal cost of subsidies
 - ▣ Link cost to crowding out of key public investments which are crucial for growth and development (best way to protect most of population from high prices is through growth)
 - ▣ Highlight the high share of benefits going to higher groups and identify better ways of protecting poor
 - ▣ Identify inefficiencies of subsidies (smuggling, shortages, energy inefficiency)

Developing a reform strategy II

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- Reform strategy needs to be set out in advance
 - ▣ Identify key public investments that will benefit from reallocation of budgetary savings
 - ▣ Identify well-targeted programs that will be expanded/created to protect the most vulnerable social groups
 - ▣ Prepare strategy for improving energy efficiency of most energy-intensive internationally traded industries (cement, fertilizer, metal products....)
 - This may involve appropriate monetary and exchange rate policies, investment incentives, and credit access, etc

Developing a reform strategy III

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- Sequenced and gradual reform approach may be warranted if large price increases required (and fiscal conditions allow)
 - ▣ Instant adjustment of subsidies that mostly benefit the rich (higher quality gasoline, jet kerosene and LPG?)
 - ▣ More gradual adjustment of other products to allow industry to adjust (e.g., diesel and LPG?)
 - ▣ Delay increase in fuels most important to poor (e.g., lower quality gasoline, kerosene)
- But there is a limit to sequencing since large price differentials can cause market disruption (adulteration)

Developing a reform strategy IV

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- Develop strategy for reform of social safety net
 - ▣ Limit subsidies to products most important for lower income groups (low quality gasoline, kerosene)
 - ▣ Limit quantities of subsidized products
 - ▣ Limit eligibility for subsidized products to lower income groups (differential subsidy rates, means or proxy-means testing)
- With improved targeting, consider switching from price subsidies to price-indexed cash transfers
- However, subsidies and cash transfers address the symptoms but not the causes of persistent poverty
 - ▣ Consider developing conditional cash transfer programs

Example of fuel subsidy reform: Indonesia, 2005-2008

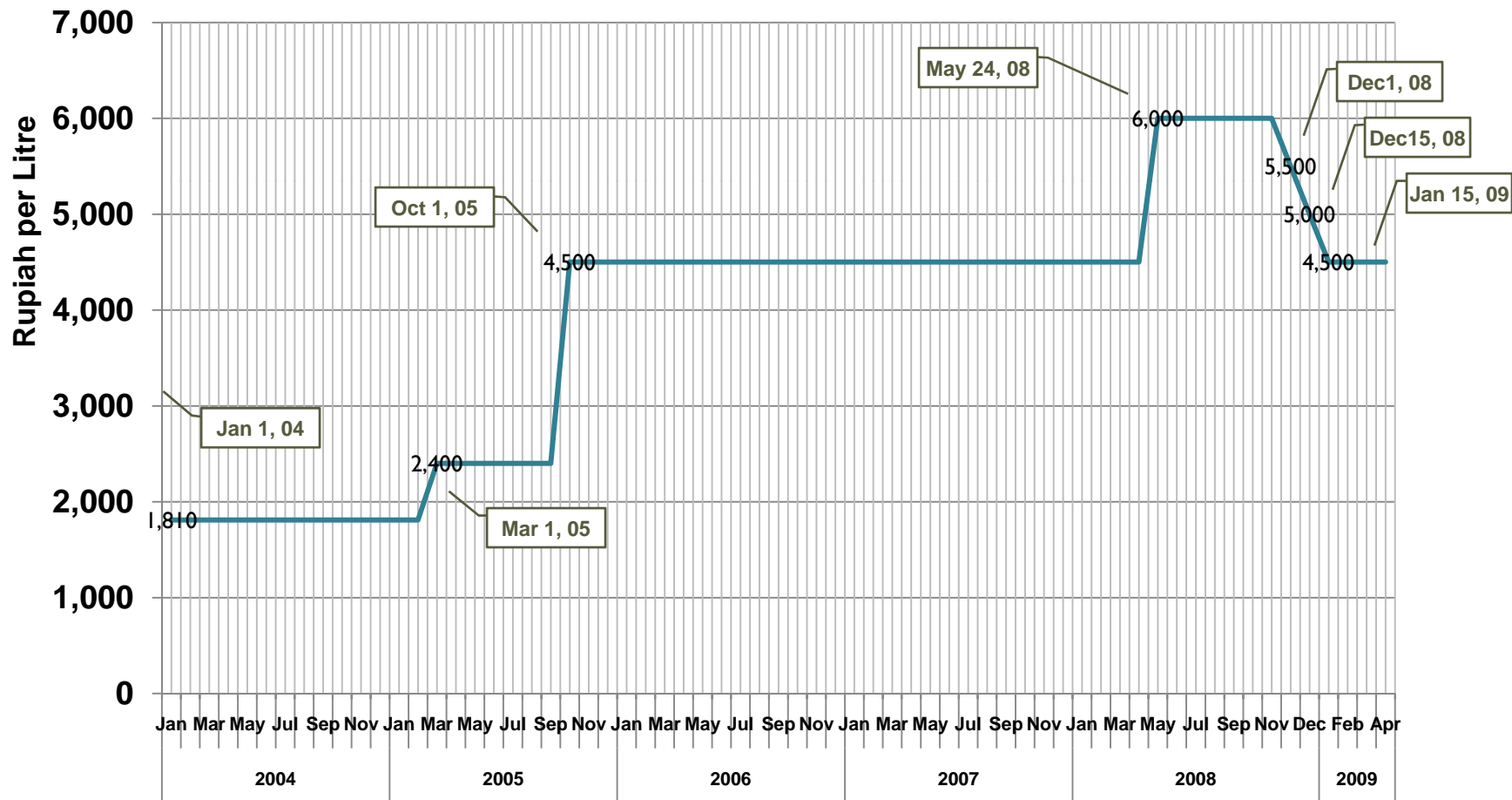
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- Repeated increases in subsidies (reaching 5 percent GDP in 2005) necessitated large price increases
 - ▣ Prices more than doubled in 2005 (March, October)
 - ▣ Prices increased by around 30 percent in May 2008
- Implemented range of mitigating measures
 - ▣ Introduced large temporary cash transfer program covering one-third of households building on existing social safety net programs (both reforms)
 - ▣ Reallocated some budgetary savings to existing education, health, and infrastructure programs benefiting broader population
 - ▣ Initiated program to reduce kerosene use by increasing LPG use

INDONESIA

Domestic Premium Gasoline Price 2004-2009 (IDR/Litre)

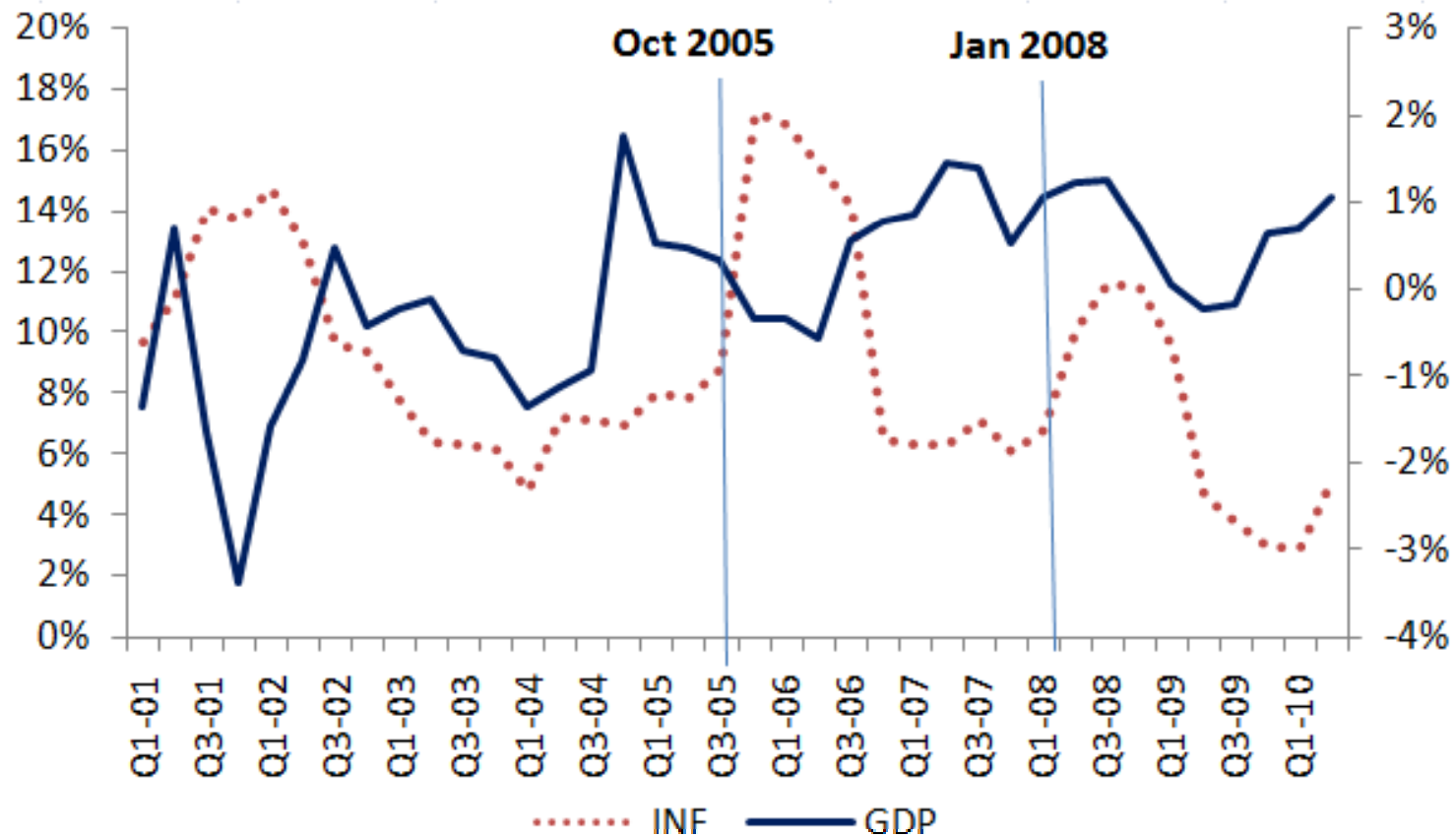
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Source: Widiyanto (2009) Moving from a general subsidy into a targeted one

Indonesia-Price adjustments, inflation and growth

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Developing a reform strategy V

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- Addressing underlying causes of subsidies requires new approach to pricing and not just ad hoc price adjustments
 - ▣ In Indonesia, subsidies kept recurring so political cost was achieved with only a short-term fiscal gain
- First-best option is to liberalize fuel pricing and markets
- However, adoption of an automatic pricing mechanism can serve as an interim approach while capacity to regulate liberalized market is developed
 - ▣ Turkey moved from an automatic pricing mechanism between 1998-2004 to liberalized regime in 2005, and from low to very high fuel taxation

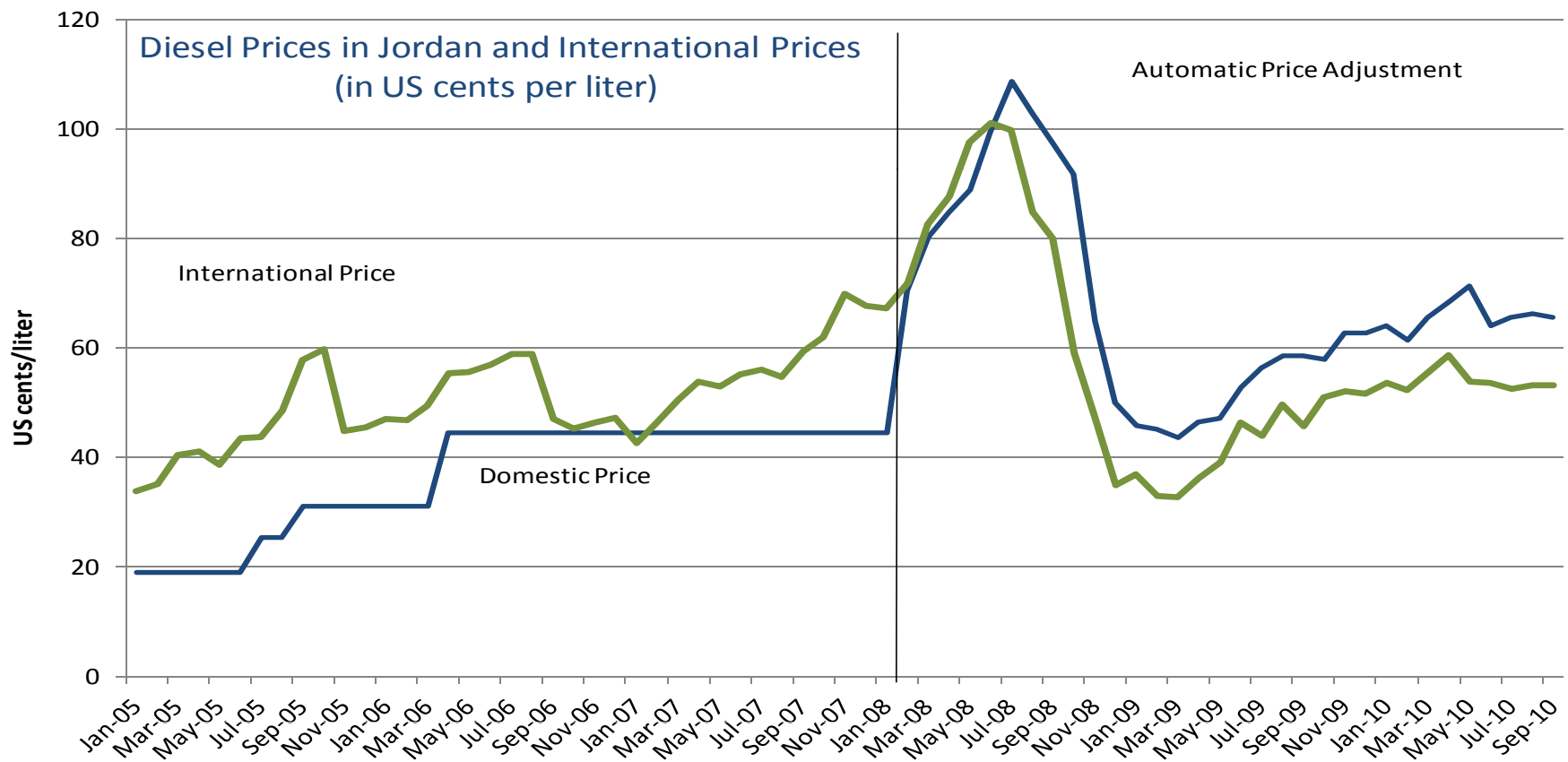
Example of fuel subsidy reform: Jordan, 2005-2008

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- Initiated gradual subsidy reform in mid 2005
 - ▣ Supported by range of targeted mitigating measures, including investments in targeted transfers
- Eventually decided to do instantaneous adjustment in February 2008
 - ▣ Fuel prices increased by between 33-66 percent
 - ▣ Adopted an automatic pricing mechanism that adjusts prices monthly in line with international prices
 - ▣ Mechanism implemented by a committee composed of representatives from ministries and refinery

Jordan addressed the causes

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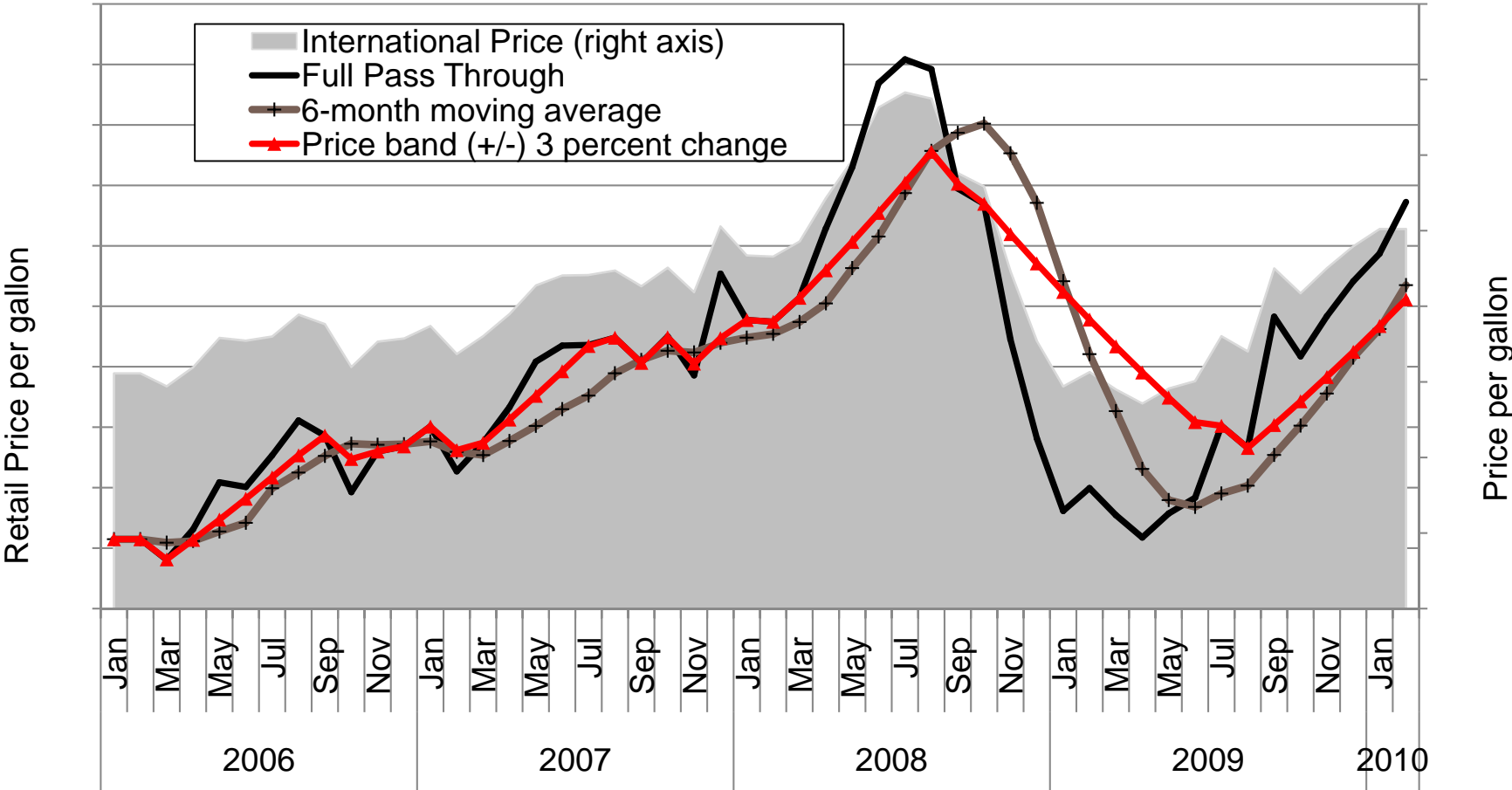
Source: Coady and others (2010)

Developing a reform strategy VII

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- Fragility of automatic pricing mechanisms often reflects reluctance to pass through large international price increases to domestic prices, especially if they turn out to be temporary
- However, a “wait and see” policy can result in escalating subsidies if international prices continue to increase eventually requiring large domestic price adjustments or entrenched subsidies
- Incorporating a smoothing rule in the automatic pricing mechanism can help to avoid large price increases while protecting budget against subsidies recurring over the medium term, e.g.,
 - ▣ Pricing based on moving average of past international prices
 - ▣ Imposing a cap on maximum price adjustment allowed, e.g., +/- 3 percent of existing price

Example of smoothing rule



What are the alternatives of phasing out the subsidy in Egypt?

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- A CGE model was applied to experiment 4 alternative scenarios to a Reference Path.
- The 4 scenarios assume that the subsidy is gradually reduced, until it is completely eliminated in 2012/2013.

Scenario 0: *Reference Path*: maintaining the subsidy, and continuing the economic policies and development trends that are planned for the period 2007/08-2012/13.

What are the alternatives of phasing out the subsidy in Egypt?

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Scenario 1: Adjustment of petroleum product prices gradually; no compensations.

Scenario 2: Adjustment of petroleum product prices with the increased government cash transfers to the poorest two quintiles (poorest 40%) by 20% in both urban and rural areas.

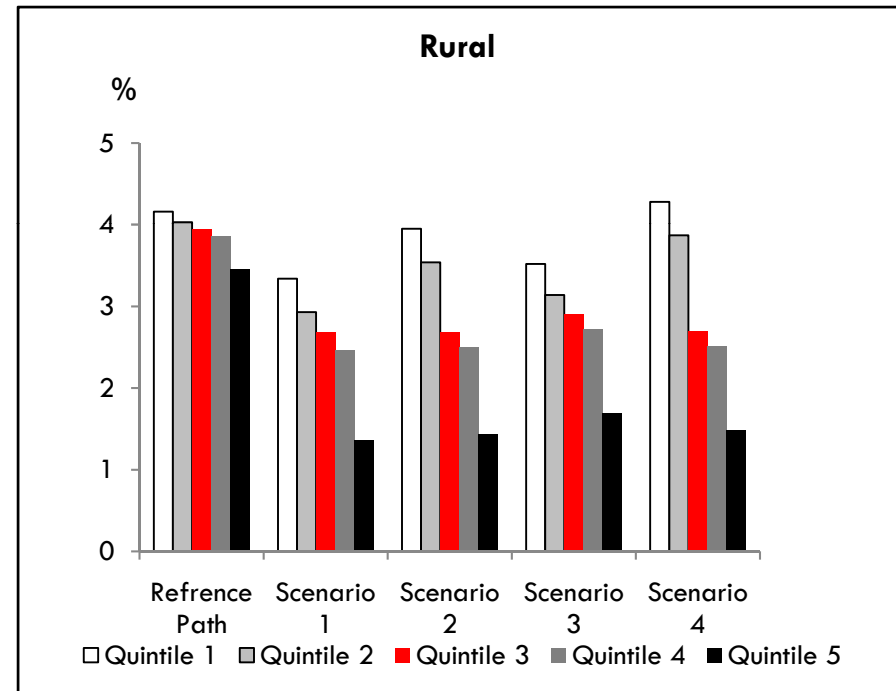
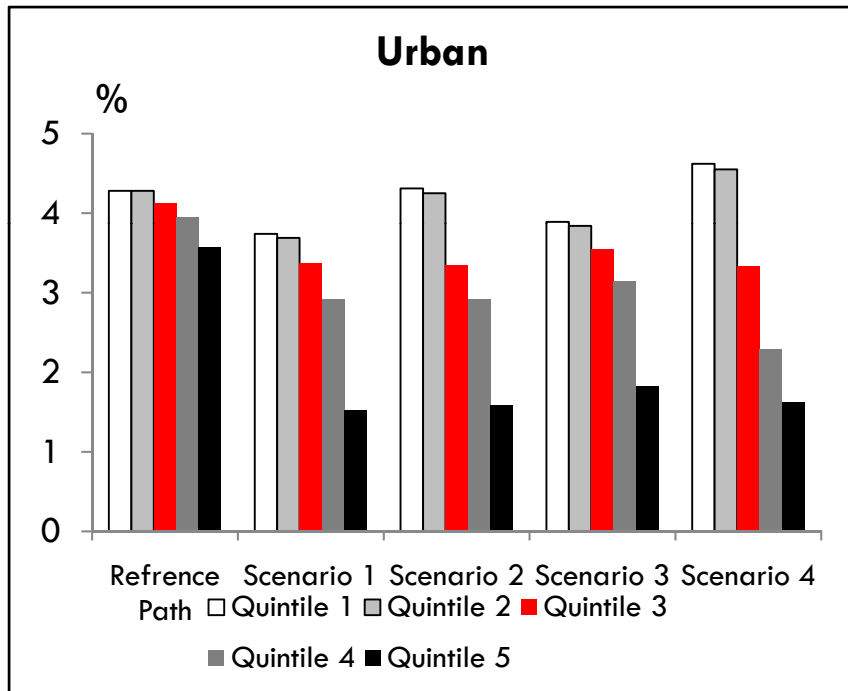
Scenario 3: Adjustment of petroleum product prices, and 50% of energy subsidy savings are transferred to all households (untargeted).

Scenario 4: Adjustment of petroleum product prices, and 50% of energy subsidy savings are transferred and targeted to the poorest two quintiles in both urban and rural areas.

What are the alternatives of phasing out the subsidy?

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Average annual growth rates of total consumption of Households by quintiles



The reference path shows very small disparity between consumption of highest & lowest quintiles. However, Scenario 4 shows the largest disparity. This suggests that under the reference path, subsidization is untargeted, and thus is not equitable, whereas scenario 4 seems more in favor of the poorest.

What are the alternatives of phasing out the subsidy in Egypt?

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- Inequality is measured as the ratio between consumption of the richest and poorest quintiles (where the smaller measure indicates less inequality).

| Scenario | Urban | | Rural | |
|----------------|---------|-----------|---------|-----------|
| | Base yr | 2012/2013 | Base yr | 2012/2013 |
| Reference Path | 5.10 | 4.9 | 3.43 | 3.30 |
| Scenario 1 | 5.10 | 4.56 | 3.43 | 3.10 |
| Scenario 2 | 5.10 | 4.46 | 3.43 | 3.03 |
| Scenario 3 | 5.10 | 4.59 | 3.43 | 3.12 |
| Scenario 4 | 5.10 | 4.43 | 3.43 | 3.01 |

- Income distribution measures are the highest in the Reference Path, signaling the highest level of inequality, compared to all four scenarios.
- The ratio of rich to poor consumption is the lowest in Scenario 4, where the petroleum subsidies are phased out, while 50% of the savings are directed to the most needy groups.

Bottom line: Inequality measures improve when subsidy is removed while the poor get compensated .

Lessons learned from International Experiences to complement reforms

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Examples of indirect compensatory measures for increases in energy products prices:

| Country | Indirect compensatory measures |
|-----------|--|
| Bolivia | Distribution of LPG through community-based organizations. |
| China | Assistance to specific sectors (e.g. agriculture, transport and fisheries) |
| Malaysia | Low transport tariffs |
| Ghana | Support to education, health, transport and electricity in rural areas |
| Jordan | Support to salaries (e.g. officials, retired) |
| Sri Lanka | Grants and foodstuffs |
| Vietnam | Assistance for fishermen |

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Conclusion

Concluding Remarks



- The current subsidy system entails a lot of waste in government resources.
- Subsidies could be gradually phased out, mindful the implications on vulnerable groups and price inflation.
- Complementary policies should aim at mitigating the effects on inflation and inequity.
- In parallel, a system should be developed to ultimately replace price subsidies with direct cash or in-kind transfers.

Concluding Remarks

- The Government should seek an objective to reduce the overall deficit by about 5 percent of GDP (to about 3 percent) by FY 2014/15, in support of private sector-led growth and less vulnerabilities.
- Such objective is feasible, based on the experience of other countries, and would lead to a further 15 percentage point decline in the debt-to-GDP ratio, currently estimated at 84 percent.
- Such adjustment will be crucial to maintain investor confidence, preserve macroeconomic stability and create space for countercyclical fiscal policy. To that end, reforming fuel subsidies is necessary.

Summary of Main Messages

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- Price subsidies are inefficient, inequitable, and fiscally costly
- Reform strategies can be strengthened through
 - ▣ Information campaign informing public of shortcomings of subsidies
 - ▣ Clear program reallocating some budgetary savings to crucial public investments (education, health, infrastructure) or even tax reform
 - ▣ Development of well-targeted safety net measures to protect most vulnerable households
 - ▣ Adoption of an automatic pricing mechanism (possibly with smoothing rule) until capacity for regulating liberalized market is developed