

# The Poverty and Equity Implications of a Rise in the Value-Added Tax

A Microeconomic Simulation for Lebanon

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# Motivation

- **Examine the incidence of a rise in the Value Added Tax (VAT) and its effect on poverty and inequality in Lebanon**
  - We develop an empirical model based on consumer demand theory and using only household survey data on expenditures and spatial price indexes
- **Provide a tool that is readily replicable in any context where household data on expenditure and spatial price variation data are available**
  - simulates the first order welfare effects of any exogenous change in price

# Outline

## **i. The Value Added Tax**

- Regional background
- Lebanon' s experience

## **ii. Methodology**

- Tax incidence analysis in the literature
- Data and analysis for Lebanon

## **iii. Results**

- Equity analysis of the increase in the VAT
- Equity analysis of the VAT exemptions
- Policy recommendations, extensions

# The Value Added Tax

## Regional background

### ▪ Easy to implement and administer

- Adopted in more than 130 countries today
- Widely used in countries of the Middle East and North Africa (MENA)
  - Morocco 20%, Tunisia 17%, and Turkey 16% are higher than other countries (Algeria 14%, Egypt and Jordan 10%)
  - Revenue yield for each percentage of the principal rate is highest (0.44) in Algeria.

# The Value Added Tax

## The experience of Lebanon

- Adopted the VAT in 2002
- Current rate is 10%
- VAT receipts constitute:
  - 33% of total tax revenue in 2004
  - 5.1% of GDP in 2005
- In January of 2007, as part of the reform package presented at the Paris III Conference on Assistance to Lebanon, the Lebanese government proposed to increase the VAT rate from its current 10% to 12% in 2008, and 15% in 2010
  - Since then, the ministry of finance has announced that the increase will be delayed until after 2009
  - So the analysis of this paper is especially timely

# Methodology: literature

Tax incidence analysis in the literature: gaps and **inconclusive** results

- VAT and other indirect taxes in some African and Asian countries reviewed by the World Bank: most tax structures **progressive**, as most goods consumed by the poor are zero-rated
  - Yet evidence from India and Pakistan reveals that a single-rate VAT system is **regressive**
- Gemmell and Morrissey (2005) find that:
  - **taxes on exports** and goods consumed especially by the poor are those most consistently found to be **regressive**, whereas taxes on luxury items are the most likely to be **progressive**
  - **sales taxes** are slightly more **progressive**, or less regressive, than **taxes on imports**
- Newhouse and Zakharova (2007) find that the VAT reform in the Philippines was **progressive** and relatively well targeted
- No studies done on the Middle East or Arab world to date

# Methodology: data and analysis for Lebanon

## ■ Approach

- Estimate own- and cross-price elasticities of demand for taxed and tax-exempt goods

»We need variation in price and quantity demanded«

- Use the elasticities to simulate the effect on consumption of the projected increase in the VAT

»We know the magnitude of the VAT increase(s)«

- Measure progressivity of VAT increase, its effect on poverty (concentration index)
- Use elasticities to evaluate the equity of the current exemptions in VAT coverage

# Methodology: data and analysis for Lebanon

## ▪ Empirical strategy

- We use the 2004/2005 multipurpose survey of households, including an extensive expenditure module:
  - » distinguish exempt from non-exempt
  - » spatial price indexes for each of 5 consumption categories for each of the 6 Mohafazas allow for variation in price and quantities
- We use Deaton and Muellbauer's Almost Ideal Demand System (AIDS) to estimate own- and cross-price elasticities
  - » impact of the price change on poverty
  - » incidence and progressivity analysis

# Methodology: data and analysis for Lebanon

## ■ Empirical strategy

– Data requirements of the AIDS model:

» budget shares on different consumption categories

**Expenditure module** ✓

» variability in prices of each of the categories

**Spatial price index** for each category of good for each Mohafaza ✓

# Methodology: data and analysis for Lebanon

## ■ Assumptions

- AIDS assumptions (price-independent generalized linear budget shares)
- Partial equilibrium analysis
  - » Cross-price elasticities: we take into account possible consumption substitutions
  - » But we take price changes to be final (no firm input adjustments)
  - » Analysis is local: small changes in prices
- Aggregation assumptions
  - » Identical demand functions across Mohafazas
  - » Differences in budget shares of different categories of goods are due primarily to differences in regional prices

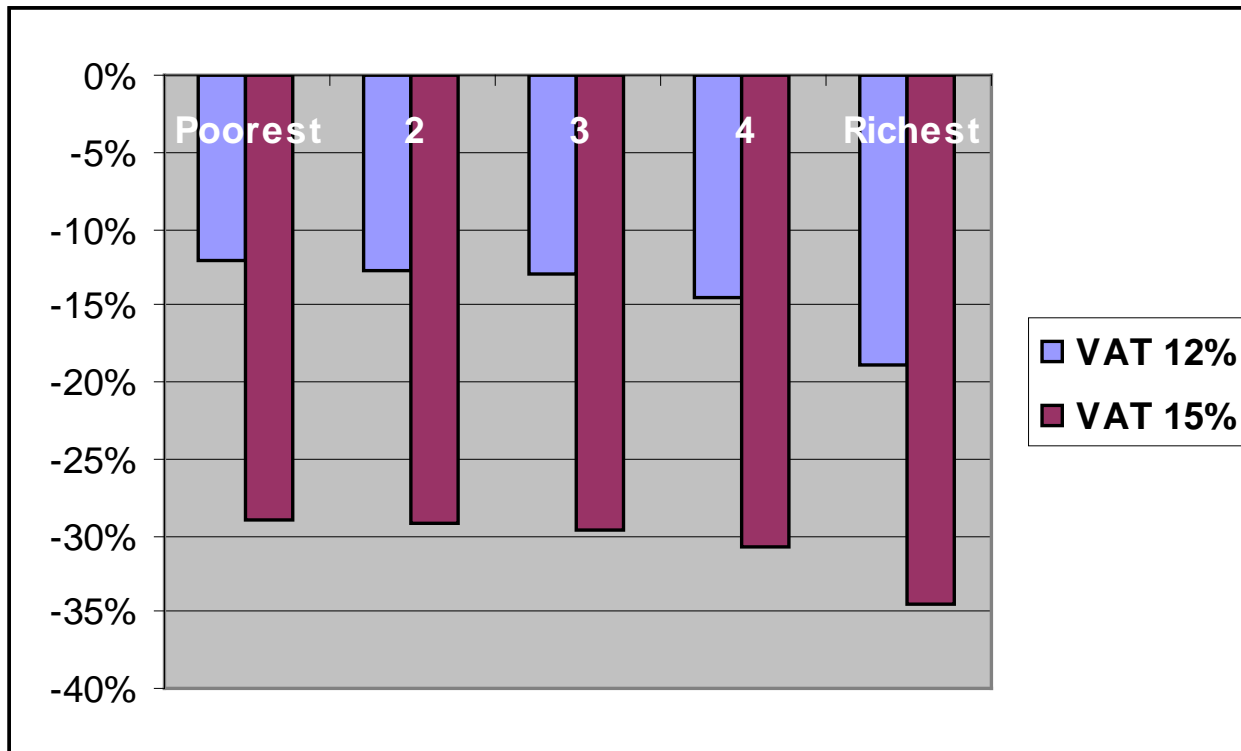
# Methodology: results

## ▪Elasticities:

	<b>Food &amp; Alcohol</b>	<b>House &amp; Cloth</b>	<b>Health &amp; Educ</b>	<b>Transport &amp; Commun.</b>	<b>Recreational &amp; other</b>
<b>Food and Alcohol</b>	<b>-5.48</b>	<b>-0.36</b>	<b>4.44</b>	<b>2.15</b>	<b>7.25</b>
<b>House and Clothing</b>	<b>-0.59</b>	<b>-2.12</b>	<b>3.63</b>	<b>1.32</b>	<b>-0.21</b>
<b>Health and Education</b>	<b>2.16</b>	<b>1.27</b>	<b>-5.84</b>	<b>-2.86</b>	<b>-2.47</b>
<b>Transport and Communication</b>	<b>2.34</b>	<b>-0.08</b>	<b>-2.65</b>	<b>-4.73</b>	<b>-4.89</b>
<b>Recreational and other</b>	<b>0.43</b>	<b>0.40</b>	<b>-1.49</b>	<b>-0.18</b>	<b>-0.95</b>
<b>Expenditure</b>	<b>1.14</b>	<b>0.88</b>	<b>0.11</b>	<b>1.51</b>	<b>0.51</b>

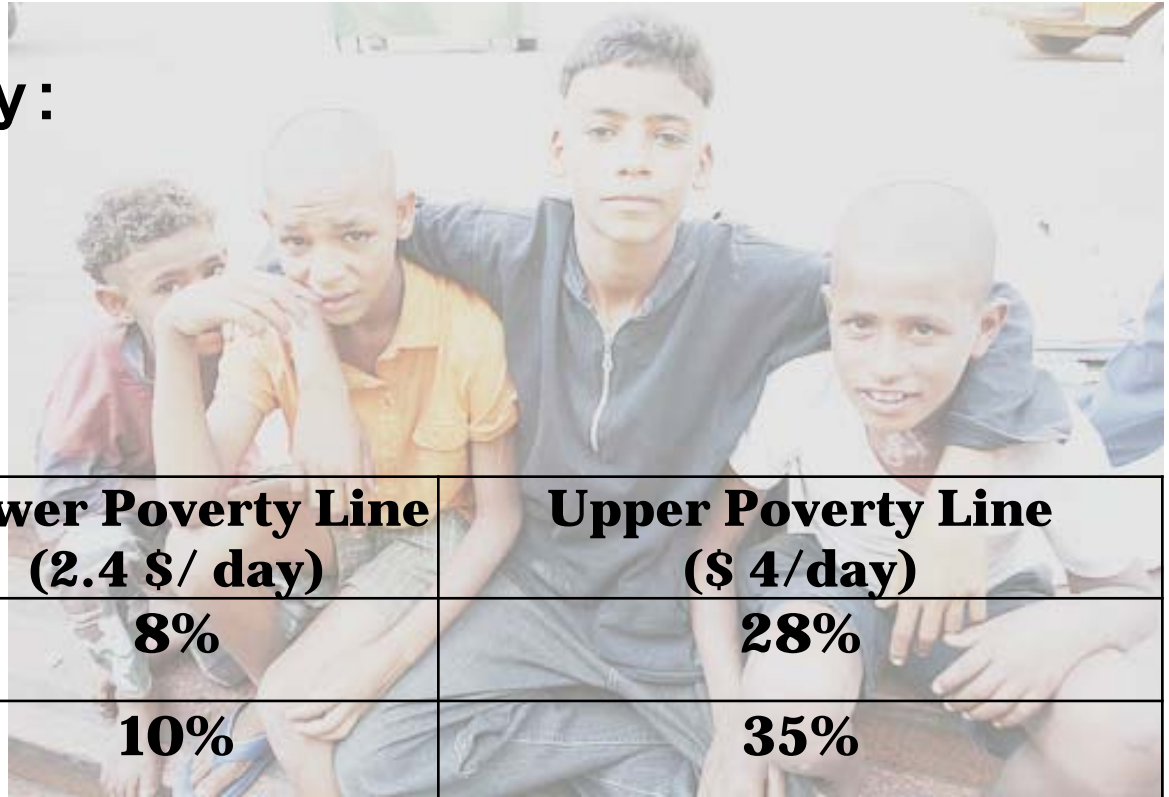
# Results: equity of an increase in VAT

■ %  $\Delta$  in real consumption expenditures by quintile:



# Results: equity of an increase in VAT

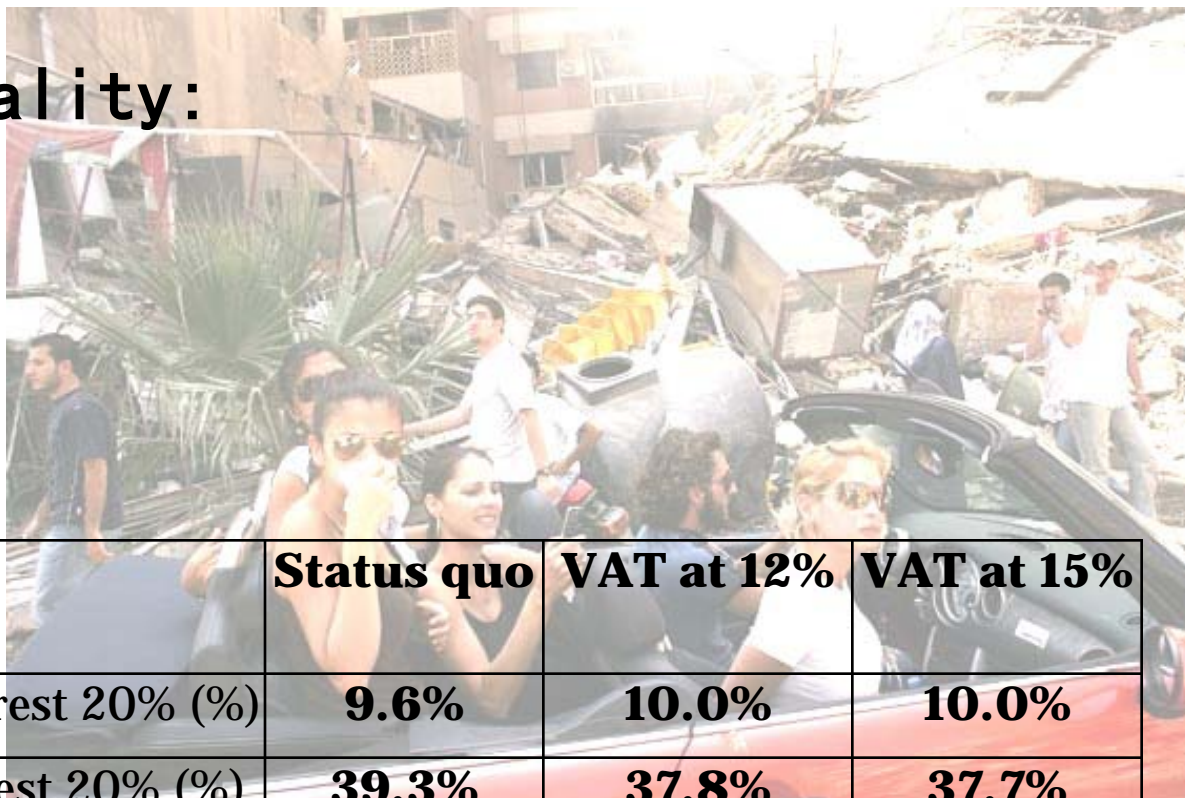
## ■ Effect on poverty:



	<b>Lower Poverty Line (2.4 \$/ day)</b>	<b>Upper Poverty Line (\$ 4/day)</b>
Current poverty rate	<b>8%</b>	<b>28%</b>
Increase VAT to 12%	<b>10%</b>	<b>35%</b>
Increase VAT to 15%	<b>16%</b>	<b>47%</b>

# Results: equity of an increase in VAT

## ■ Effect on inequality:



	<b>Status quo</b>	<b>VAT at 12%</b>	<b>VAT at 15%</b>
Share of consumption, poorest 20% (%)	<b>9.6%</b>	<b>10.0%</b>	<b>10.0%</b>
Share of consumption, richest 20% (%)	<b>39.3%</b>	<b>37.8%</b>	<b>37.7%</b>
Ratio of richest 20% to poorest 20%	<b>4.1</b>	<b>3.78</b>	<b>3.77</b>

# Results: equity of VAT exemptions

- Share of household expenditures spent on exempt category, by quintile:

<b>Exempted Category</b>	<b>Poorest</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Richest</b>	<b>Overall</b>
Food items	<b>17.9%</b>	<b>15.7%</b>	<b>14.1%</b>	<b>12.0%</b>	<b>9.2%</b>	<i>13.8%</i>
Butane	<b>2.7%</b>	<b>1.9%</b>	<b>1.4%</b>	<b>1.1%</b>	<b>0.7%</b>	<i>1.6%</i>
Collective Transport	<b>1.4%</b>	<b>1.5%</b>	<b>1.3%</b>	<b>1.1%</b>	<b>0.8%</b>	<i>1.2%</i>
Education and Books	<b>4.5%</b>	<b>7.6%</b>	<b>8.7%</b>	<b>11.2%</b>	<b>13.2%</b>	<i>9.0%</i>
Luxury and Air Transport	<b>0.0%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.1%</b>	<b>0.5%</b>	<i>0.2%</i>
Financial and Insurance	<b>0.1%</b>	<b>0.1%</b>	<b>0.2%</b>	<b>0.4%</b>	<b>1.0%</b>	<i>0.4%</i>
Health	<b>6.2%</b>	<b>6.3%</b>	<b>6.8%</b>	<b>7.1%</b>	<b>8.2%</b>	<i>6.9%</i>

# Results: policy recommendations

## ■ Proposed VAT increase(s) :

- limited impact on the very poor, because current exemptions (especially on food and butane) are well targeted
- large negative effect on the welfare of the middle class and households living just above the poverty line

## ■ Current exemptions:

- food and butane exemptions are well targeted
- jewelry and air transport are not
- education exemption is regressive – as spending on education is higher for richer than poorer households, reflecting the impact of private educational spending – it is advisable in the short term not to remove this exemption

## ■ Recommendation:

- do not increase the VAT rate under the current circumstances, unless concrete mitigating measures targeting the poor and vulnerable are enacted
- luxury items should be eliminated from the exemption list
- explore more effective strategies to reduce the cost of expenditure categories that bear heavily on the poor (such as transport costs)

# Results: extensions

- Applicable in any context that has household level data with variation in prices

## Improvements:

- Spatial correlation in demand and prices can be incorporated
- Longitudinal data would control for the heterogeneity across demands and regions that we have assumed away
- Expenditure module records data in very fine categories of goods: adding quantity data would be easy and very useful for our sort of analysis
- Data on savings and consumption would allow us to evaluate the equity implications of the proposed increase in the tax on interest income