

Disaggregating the electricity sector in Egypt social accounting matrix

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The basic structure of social accounting matrix

	Activities	Commodities	Factors	Enterprises	Households	Government	Investment	Rest of the World	Total
Activities		Marketed output			Home consumption				Activity income
Commodities	Intermediate inputs	Transaction costs			Marketed consumption	Government consumption	Investment, change in stocks	Exports	Total demand
Factors	Value-added							Foreign factor earnings	Factor earnings
Enterprises			Factor income to enterprises			Transfers to enterprises		Foreign enterprise receipts	Enterprise earnings
Households			Factor income to households	Indirect capital payments	Interhousehold transfers	Transfers to households		Foreign remittances received	Household income
Government	Producer taxes	Sales taxes, import tariffs	Factor taxes	Corporate taxes	Personal taxes			Government transfers from rest of	Government income
Savings				Enterprise savings	Household savings	Government savings		Foreign savings	Savings
Rest of the World		Imports		Repatriated earnings	Foreign remittances paid	Government transfers to rest of world			Foreign exchange outflow
Total	Gross output	Total supply	Factor expenditure	Enterprise expenditure	Household expenditure	Government expenditure	Investment	Foreign exchange inflow	

Social accounting matrix for Egypt

- **Taylor** constructed in 1979 the first social accounting matrix for Egypt for 1975.
- This SAM followed by series of social accounting matrices for Egypt have been constructed by a number of researchers (**S. Ahmed, Bhattacharya, Grais, & Pleskovic, 1985; Eckaus & Desmond, 1981; El-Said, Löfgren, & Robinson, 2001**).
- In recent years, the central agency for public mobilization and statistics (**CAPMAS**) collaborated with the international food policy research institute (**IFPRI**) to construct social accounting matrices for Egypt for years 2010/2011,2012/2013,2014/2015.

Social accounting matrix for Egypt

SAM	Activities	Products	Transaction Costs	Factor Of Production	Enterprises Sector	Households Sector	Government	Taxes	Saving / Investment	Change in Inventories	Rest of the world	Total
Activities		3972										3972
Products	1615		381			1857	286		358	16	328	4841
Transaction Costs		381										381
Factor Of Production	2357										2	2359
Enterprises Sector				1635			223				3	1862
Households Sector				679	1320		119				126	2244
Government					198	11		112			25	346
Taxes and Subsidies		-31		3	102	38						112
Saving / Investment					242	333	-286				86	374
Change in Inventories									16			16
Rest of the world		519		41	0	5	5					570
Total	3972	4841	381	2359	1862	2244	346	112	374	16	570	

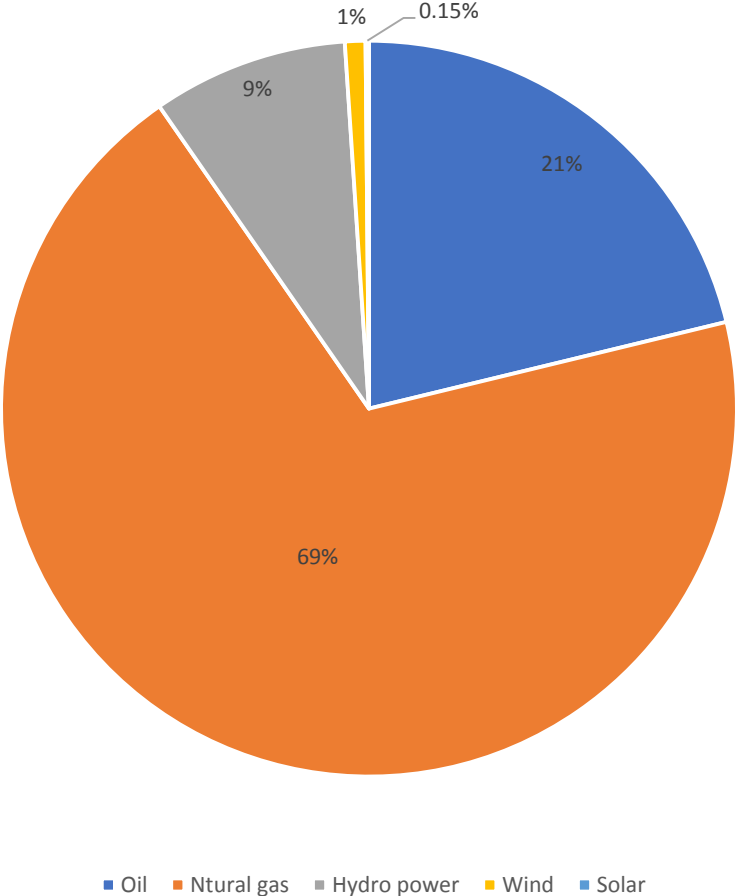
Source: CAPMAS (2019)

Disaggregation of electricity sector

- In standard SAM, the electricity, gas and steam are aggregated in one sector. we disaggregated the electricity sector into different subsectors based on the sources of electricity generation (Electricity- oil, Electricity - natural gas, Electricity- hydro power, Electricity- wind, and Electricity- solar).

Disaggregation of electricity sector

Figure 2: Shares of electricity generation by source in Egypt 2014/2015 (%)



Source: CAPMAS (2016) and IEA database

Disaggregation of electricity sector

- The input shares from natural gas, petroleum products, and other chemicals for all electricity generating technologies (%)

	Electricity-oil	Electricity-natural gas	Electricity-hydropower
Natural gas	29	71	
Petroleum products	79.9	20	0.000148664
Other chemicals	5	87.1	7.9

Source: CAPMAS (2016)

Disaggregation of electricity sector

- The value of fuel used to generate electricity in Egypt

	Electricity-oil	Electricity-natural gas	Electricity-hydropower
Fuel oil (mazot)	17016105.1	3465215.9	
Diesel	30850.7	810999.4	31.7
Natural gas	5128573.5	12729771.2	
Chemical products	479.6	40.5	768.6

Source: CAPMAS (2016)

Disaggregating Factors of production

- In the national SAM, there are three factors of production namely labour, land, and capital. We disaggregated labour into three types on the basis of skill levels: unskilled, semi-skilled, and skilled, while labour and capital does not change.

Disaggregating household sector

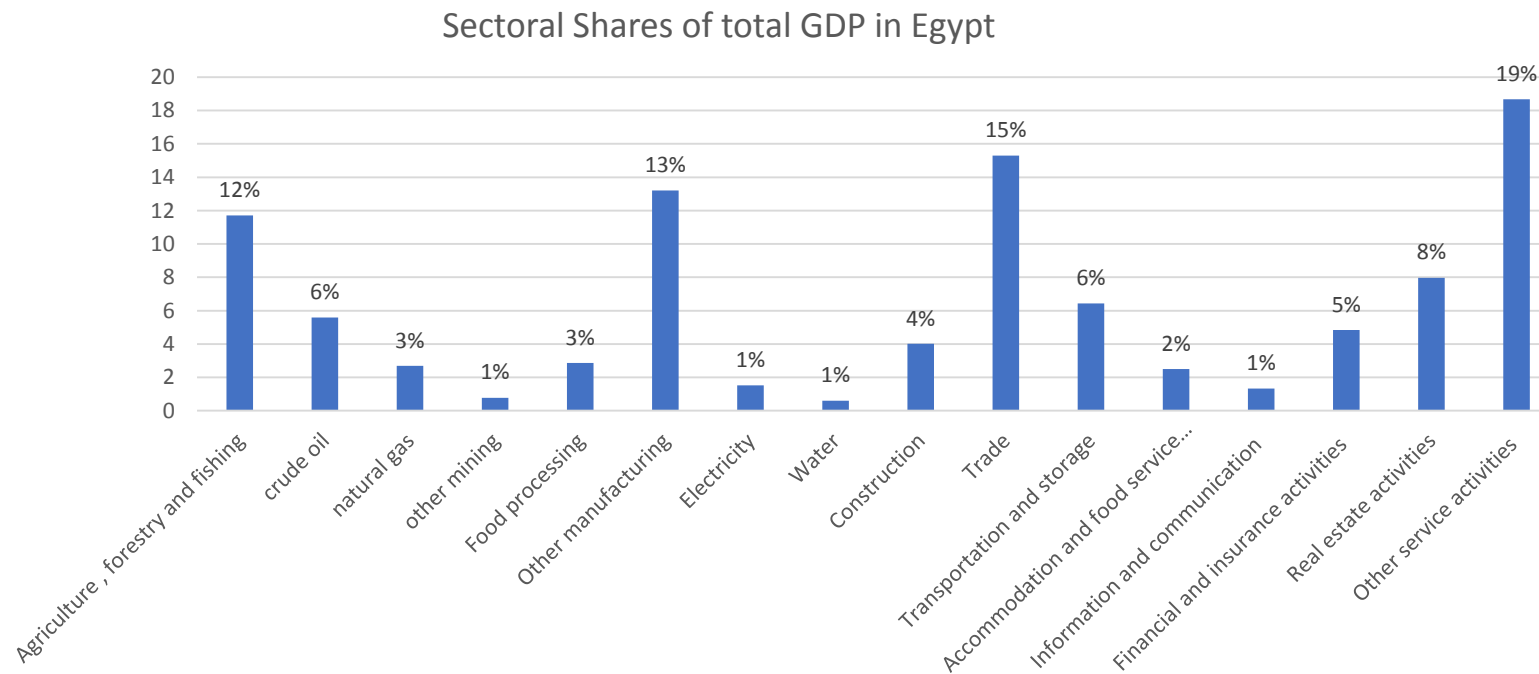
- The household sector was divided spatially into urban and rural households with each being further disaggregated into 10 representative household groups according to per capita expenditure quintiles.
- This SAM consists of 9 energy producing activities including crude oil, natural gas, other mining, petroleum products, electricity-oil, electricity-natural gas, electricity-hydro power, electricity-wind, and electricity-solar. There are 10 energy commodities namely coal and lignite, crude oil, natural gas, other mining, petroleum products, electricity-oil, electricity-natural gas, electricity-hydro power, electricity-wind, and electricity-solar.

Composition of value added (%)

	Labour	Land	Capital
Agriculture, forestry and fishing	34.049	13.63	52.31
crude oil	1.80		98.20
natural gas	3.66		96.33
other mining	5.93		94.07
Food processing	24.64		75.36
Other manufacturing	18.1		81.9
Electricity	56.2		43.8
Water	46.8		53.1
Construction	16.4		83.6
Trade	8.9		91.1
Transportation and storage	20.7		79.3
Accommodation and food service activities	15.6		84.4
Information and communication	30.0		70
Financial and insurance activities	49.3		50.6
Real estate activities	2.0		97.9
Other service activities	64.9		35.1

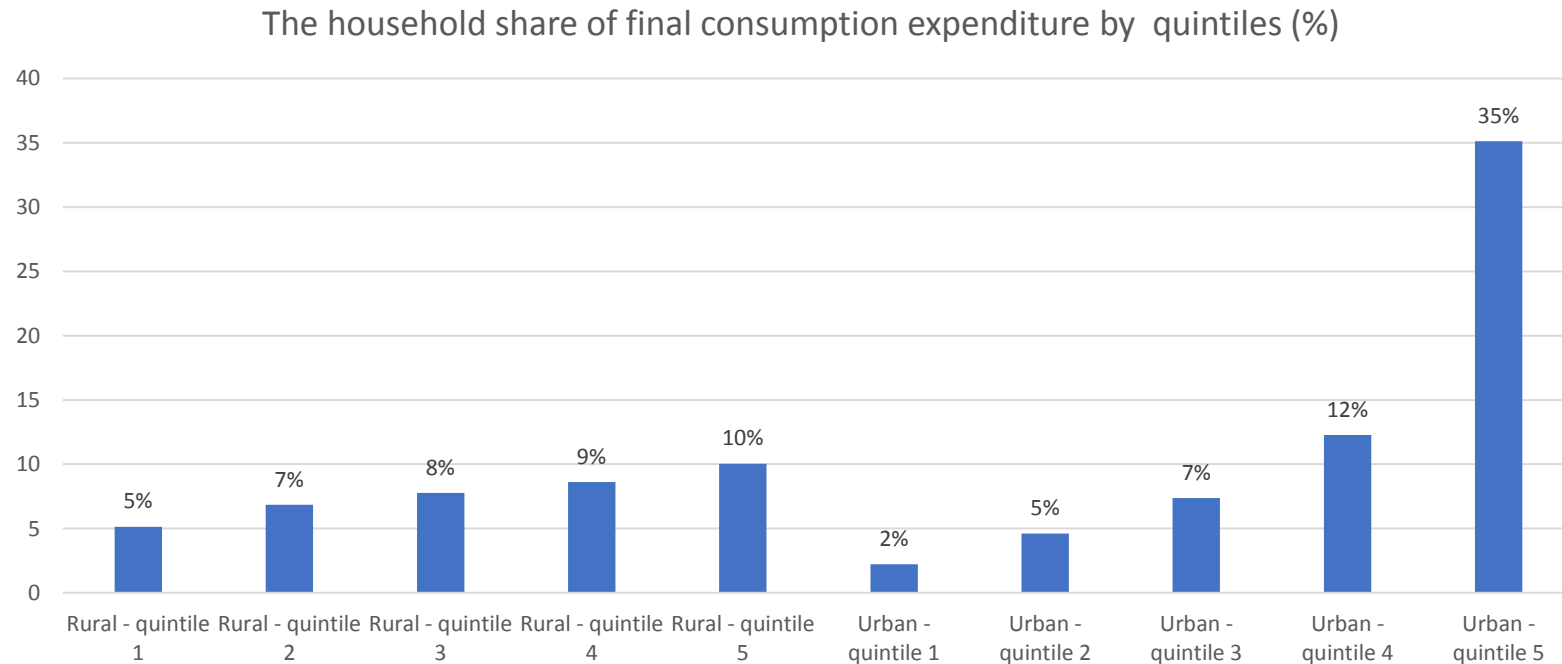
The economic structure of Egypt based on disaggregated SAM for Egypt for 2014/2015

- GDP shares



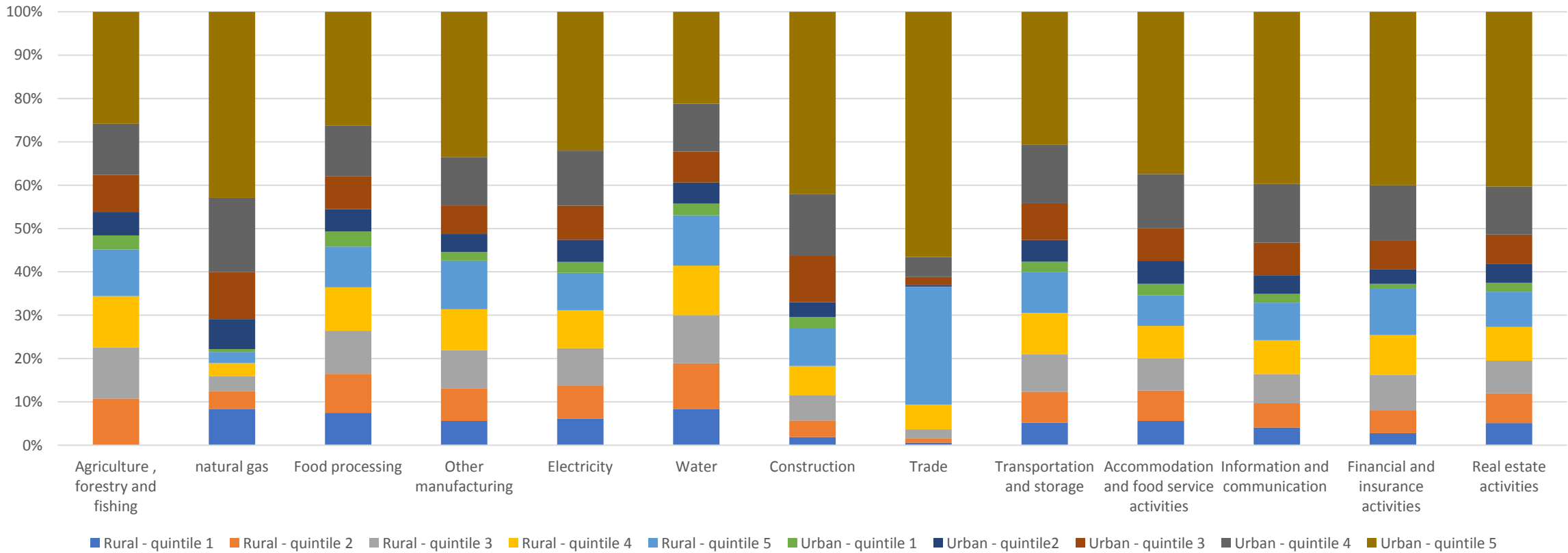
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- Household shares



The economic structure of Egypt based on disaggregated SAM for Egypt for 2014/2015

Households expenditure on commodities shares

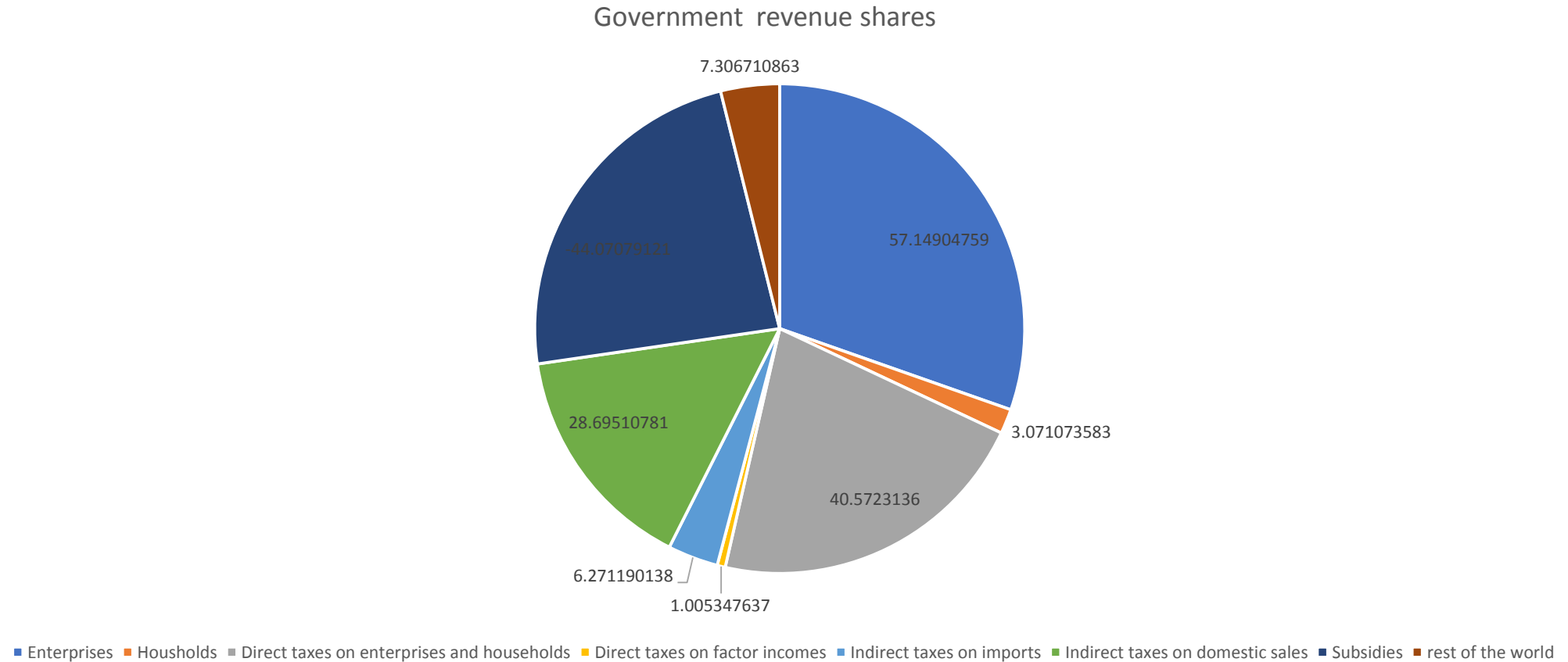


The economic structure of Egypt based on disaggregated SAM for Egypt for 2014/2015

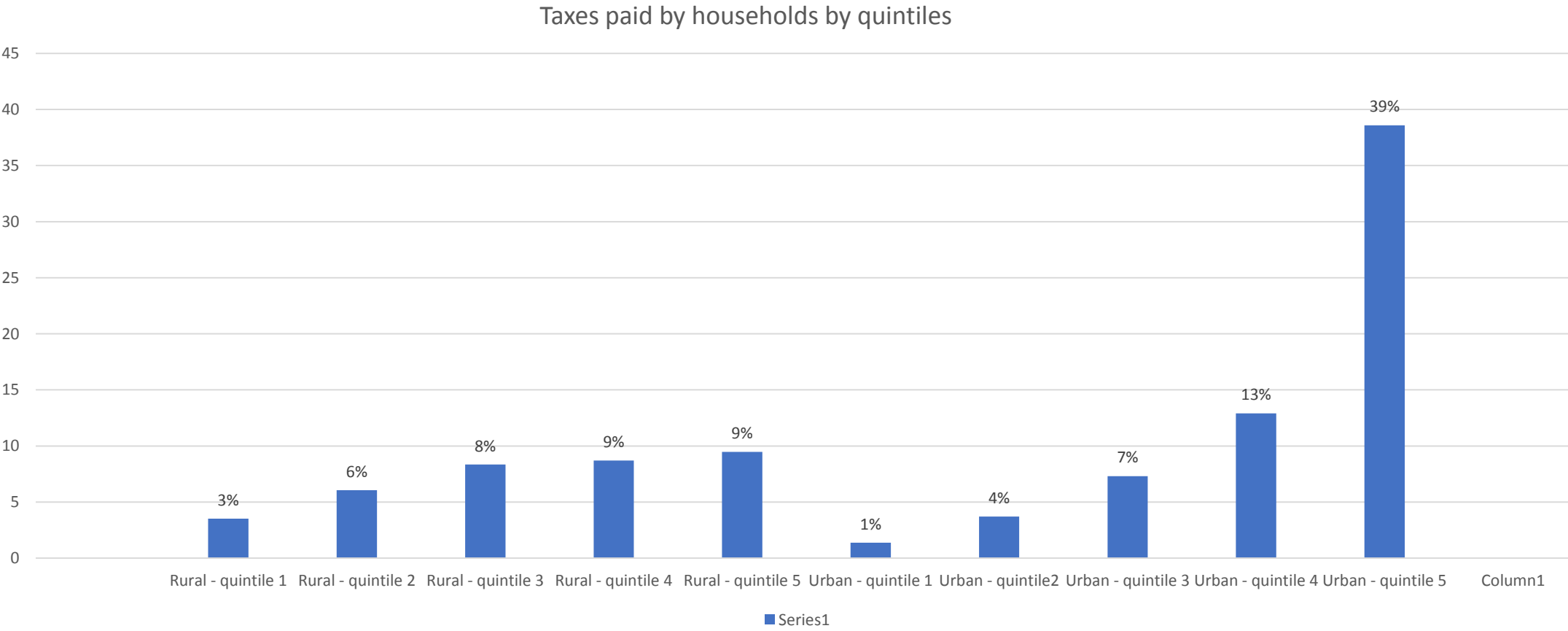
Trade shares

	Exports	Exports intensity	Imports	Imports intensity
Agriculture , forestry and fishing	4.97	4.4	6.7	7
crude oil	4.05	10.2	1.8	4.5
natural gas	0.3	1.7	2.8	13.8
other mining	9.9	107.8	1.3	13
Food processing	4.8	6.3	7.6	12.0
Other manufacturing	28.5	10.2	52.3	20.3
Electricity	0.05	0.07	0	0
Water	0	0	0	0
Construction	1.4	1.7	2.2	4.3
Trade	0	0	0	0
Transportation and storage	24.5	38.5	11.1	25.8
Accommodation and food service activities	15.8	58.1	5.2	20
Information and communication	0	0	0	0
Financial and insurance activities	1.0	2.4	2.6	9
Real estate activities	0	0	0	0
Other service activities	4.5	2.6	6.2	5.1

The economic structure of Egypt based on disaggregated SAM for Egypt for 2014/2015



The economic structure of Egypt based on disaggregated SAM for Egypt for 2014/2015



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