THE IMPACT OF COMPETITION IN THE MOBILE VOICE MARKET ON TELECOMMUNICATIONS SECTOR AND MACRO ECONOMY IN KENYA

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Overview

- Terms of Reference
- Interpretation of TOR
- Economic of Competition policy
- Role of MTR
- Effect of Competition on Tax Revenue
- Effect of competition on Profits
- Effect of competition on Macroeconomy
- Effect of competition on Safaricom Stock
- Proposed Retail price floor

Objectives of the Study

- Evaluate the impacts of competition in the mobile voice telephony market on exchequer revenues and recommend appropriate fiscal remedies to address volatility in tax revenues;

- Evaluate the impact of competition in the mobile voice market on profitability and financial performance of the sector;

- Evaluate the effects of competition for telecommunications services on Government Macro Economic agenda such as investments, employment creation, inflation, business process outsourcing, access and affordability of telecommunication service;

- Using accurate data and plausible modeling approach, isolate the effects of the ongoing competition in the mobile voice market on the performance of Safaricom Stock in the Nairobi Stock exchange and any threats to the stability of the stock market; and

- Based on sound micro economic judgment and best practices from progressive telecommunications jurisdictions, evaluate the economic soundness of introducing retail price floor for mobile voice services pegged at 50% above the prevailing wholesale prices.

Interpretation of TORs

- Objective 1
  - Effect of competition on exchequer revenue
  - Effect of competition on tax instability
- Objective 2
  - Effect of competition on profitability
- Objective 3
  - Effect of Competition on Macroeconomy
    - $AD = C + I + G + (X-M)$
- Objective 4
  - Competition effect on Safaricom stock price
  - Effect of Safaricom on NSE
- Objective 5
 - Economics of price floor

Economics of Competition

- Policy goal
  - Promote and protection effective competition to enhance Welfare of Kenya
    - Economic Efficiency
      - highest output at lowest price
- Firm Problem
  - Max profit
- Competitive market
  - Assumption
    - Firm as price takes
    - No information asymmetry
  - Innovation
  - Reduction of production cost
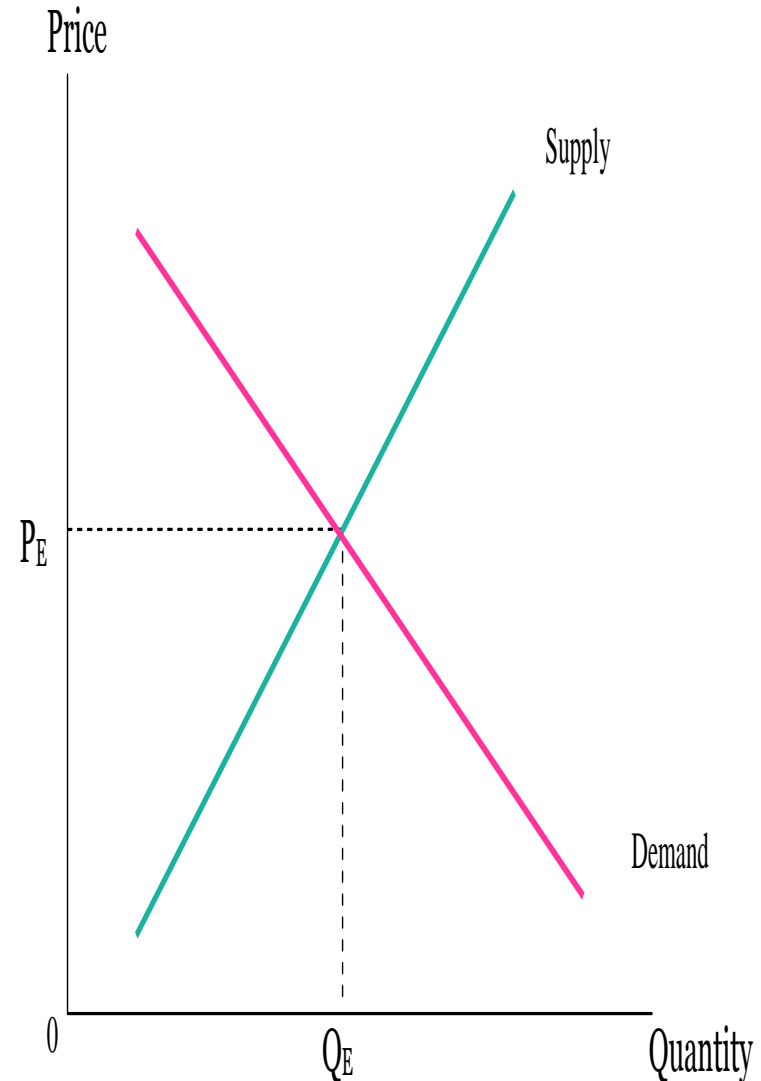
Role of MTR

- Comparative analysis
- Role MTR
  - Firm problem
    - Limit access
- Solution
  - Regulate access price
  - Internalize positive externalities
- Analogous problem
  - Mandatory vaccination
  - Creation of easement to public facilities
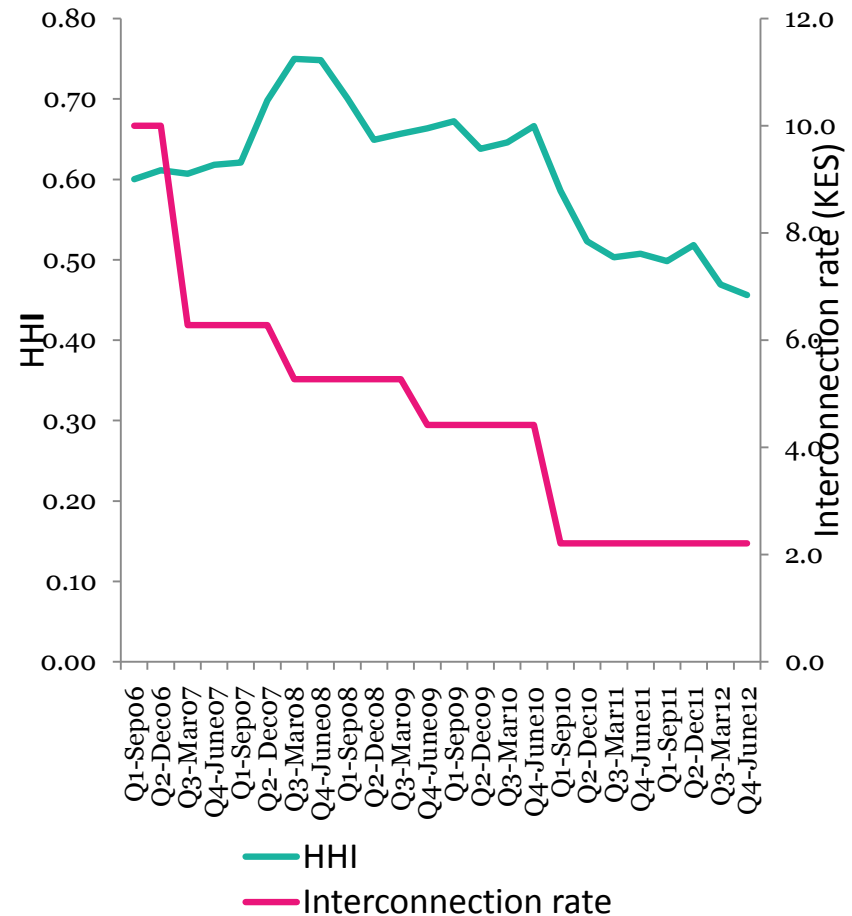
Competition effect on Tax Revenue

- Issue
  - Competition on Tax Revenue
- Methodology
  - Trend Analysis
    - HHI v Total Tax revenue
    - HHI v forms of taxes Revenue
- Findings
  - HHI ↓ v Total Tax revenue ↑
  - HHI ↓ v forms of taxes Revenue
- Interpretation
  - Competition enhances consumption and thus consumption taxes

Competition effect on tax Revenue

Annual tax revenue from mobile operators, 2006/7 to 2011/12
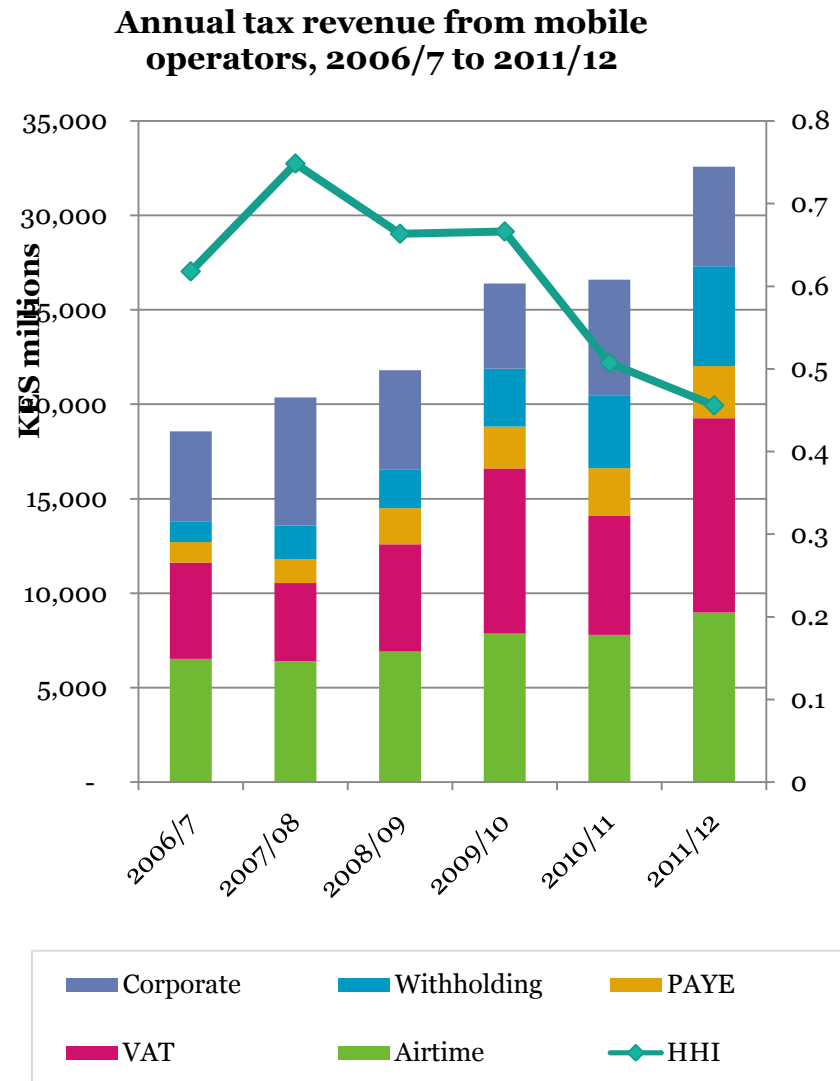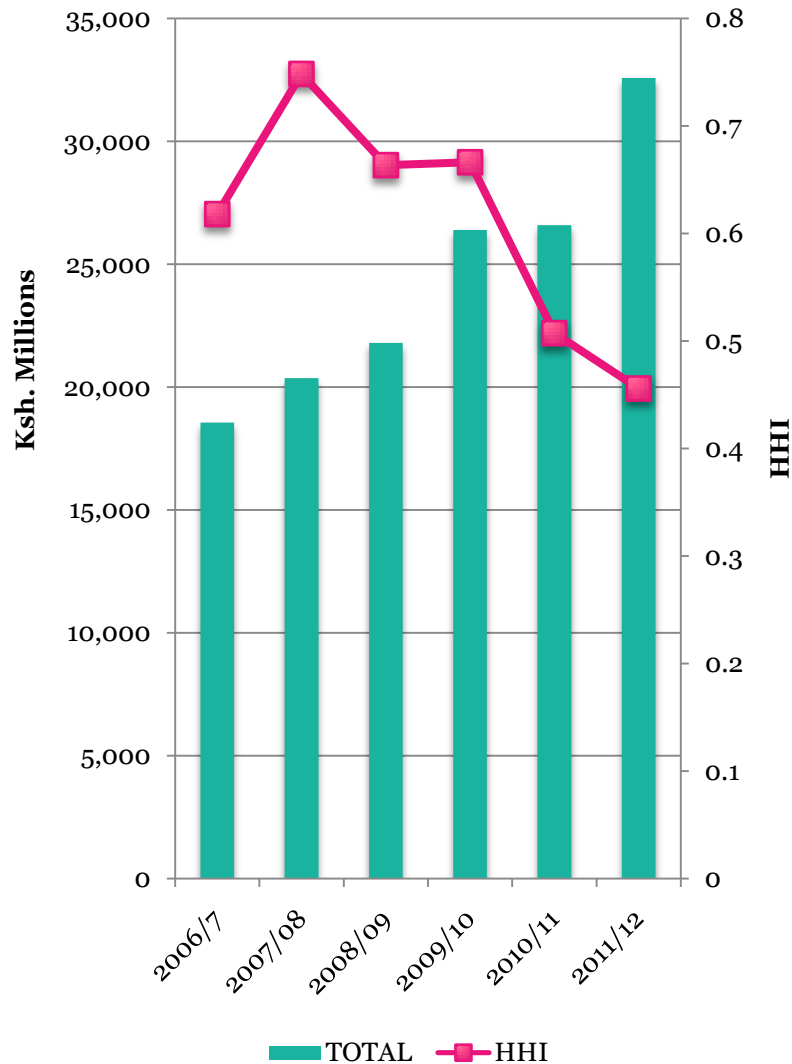
Competition Effect on Tax Revenue instability

- Issue:
  - effect on tax instability
- Methodology
- $\ln(\sigma_t) = \alpha_0 + \alpha_i \ln(x_{it}) + \beta_i \ln(z_{it}) + \varepsilon_t$
- Findings
  - Lag tax instability has an impact
  - Airtime increases instability
  - VAT reduces instability
  - GDP increase instability
  - HHI has no impact
- Interpretation
  - Competition promote efficiency

| Variable	A	B
Tax inst(-1)	0.56 (14.29)	0.56 (14.12)
Income	0.01 (0.36)	0.01 (0.37)
Excise	1.30 (10.93)	1.30 (10.77)
VAT	-0.29 (-3.65)	-0.29 (-1.25)
Openness	-0.21 (-1.25)	-0.21 (-1.25)
GDP	7.57 (7.57)	7.62 (7.62)
Constant	3.11 (16.18)	3.00 (5.81)
Adj. R²	0.95	0.95
F-stat	155.98 (0.00)	130.57 (0.00)

Competition effect on Profitability

- Issue:
  - Competition effect on Profits
- Methodology
  - Granger causality test
    - Revenue(profit proxy) was regressed on past values of itself and HHI
    - Used monthly data-Jan. 2009-June 2012
- Findings
  - Coefficient on first lag of HHI significant (t=2.59)
- Interpretation
  - Competition is useful for predicting profitability

Variable	coefficient	t
Profit Lag 1	-0.3045	-1.82
Profit Lag 2	-0.4303	-2.76
HHI Lag 1	$1.80e^{10}$	-2.57
HHI Lag 2	$-1.69e^8$	-0.02
HHI Lag 3	$-8.75e^9$	-1.29
HHI Lag 4	$1.06e^{10}$	1.73
HHI LAG 5	$3.56e^9$	0.53
F-statistic(7,28) *Prob>F*	3.25 (0.0119)	

Effect on Macroeconomy

- Issue:
  - Effect on Employment
- Methodology
  - Trend analysis of direct, indirect and HHI
- Findings
  - Total employment increased with competition
- Interpretation
  - In competitive environment the firm faces elastic demand thus to increase revenue firm must reduce variable cost
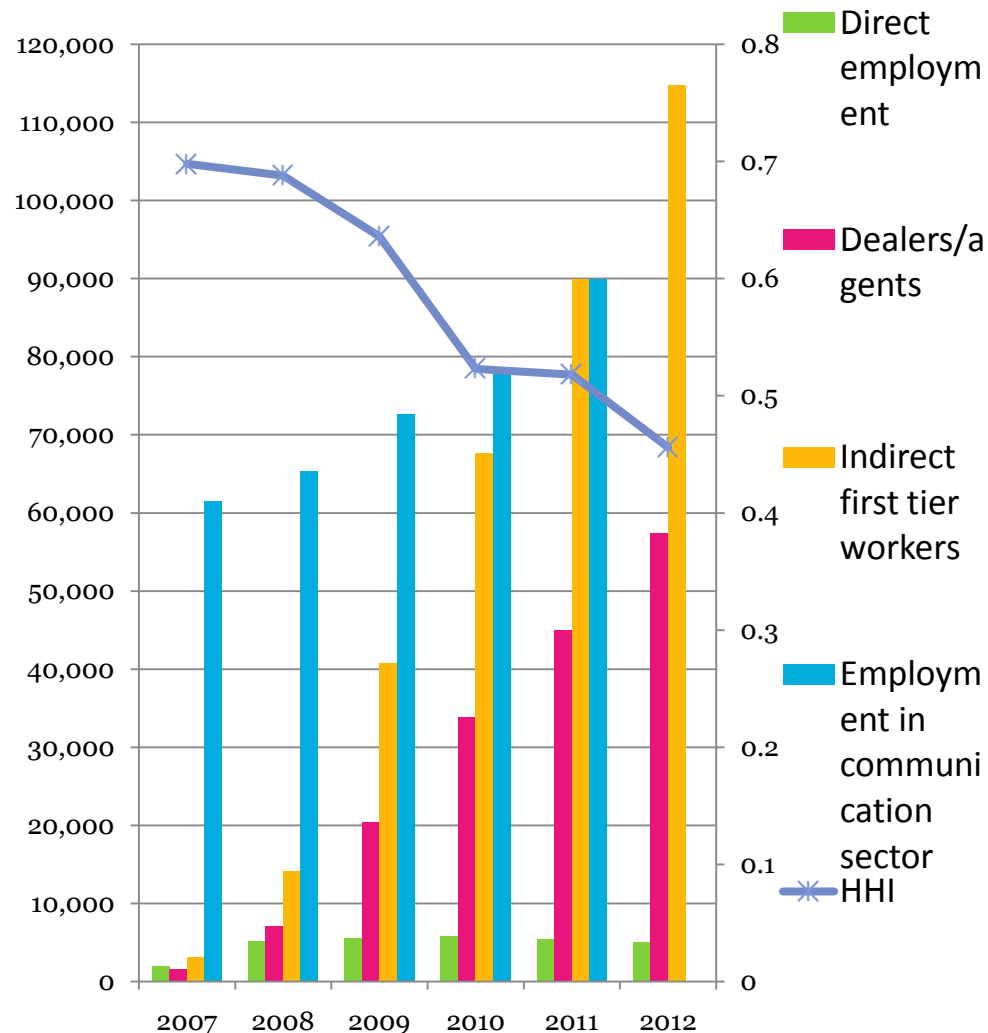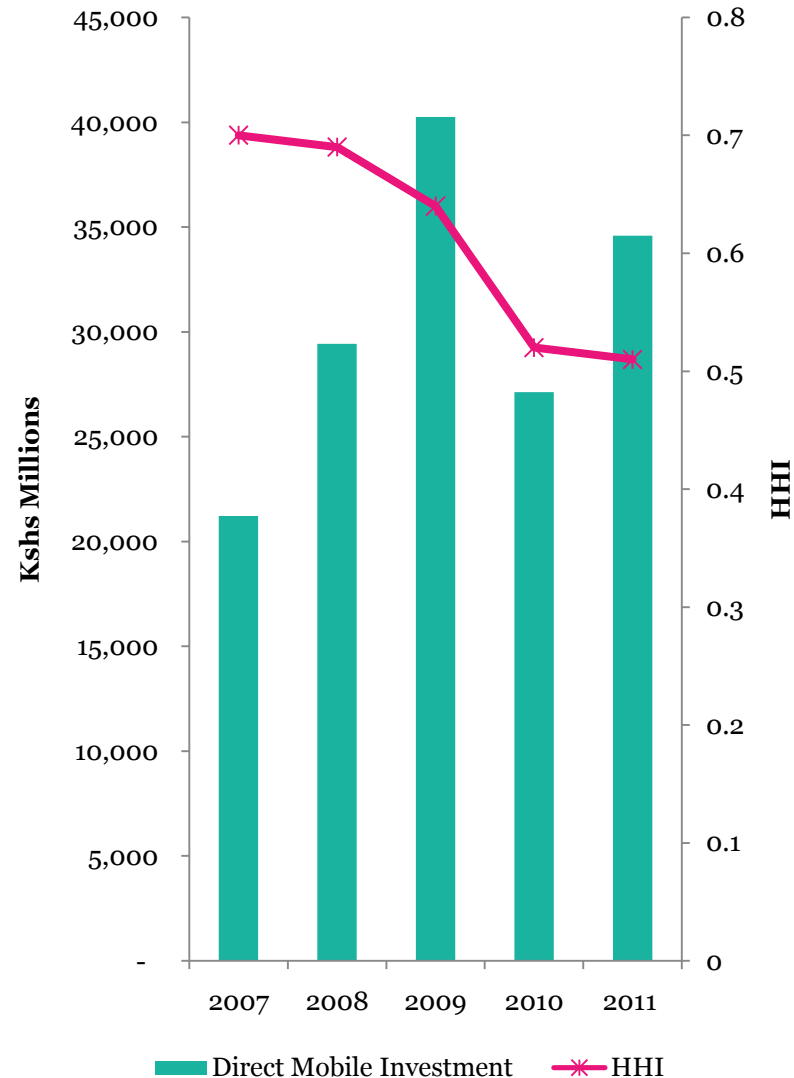
Effect of Macroeconomy

- Issue:
  - Effect on Investment
- Methodology
  - Trend analysis
- Findings

Investment has been increasing steadily over the years however in 2010, there was a slow down in investment in due to heavy investment in prior years; (upgrading & undersea cables), this picked up in 2010 & is expected to increase as MNOs continue upgrading network to cater to increased traffic

- Interpretation
  - Outcome is consistent with economic theory

Effect on Macroeconomy
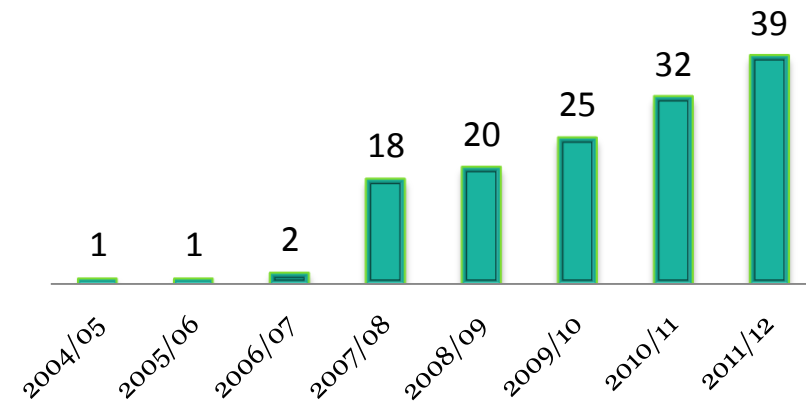
- Issue
  - Competition on Inflation
- Methodology

  $\pi_t = \lambda_1 \pi_{t-1} \lambda_2 \pi_t^{tel} \lambda_2 D + \varepsilon_t$

- Findings
  - Past inflation has impact inflation
  - HHI & Airtime has no impact
- Interpretation
  - Airtime contribute to 3% of CPI

| Variable	A	C
Lag CPI	-0.2221 (-1.548)	-0.319 (-2.093)
Lag 4 CPI	0.675 (4.320)	0.605 (3.826)
Lag 12 CPI	0.484 (3.226)	0.459 (2.712)
HHI	-0.029 (-1.230)	
Airtime CPI	0.024 (0.937)	
Airtime/ HHI		0.007 (0.540)
Constant	-0.003 (-0.374)	0.001 (0.187)
R²	0.764	0.725
F-state (p value)	6.463 (0.001)	6.405 (0.001)

Effect on Macroeconomy

- Issue:
  - Competition Effect on BPO
- Methodology
  - Trend analysis
  - Government policy
    - Vision 2030,
    - Interconnectivity networks
- Findings
  - Licensed BPO ↑
  - Impact (ICT) ↑
- Interpretation
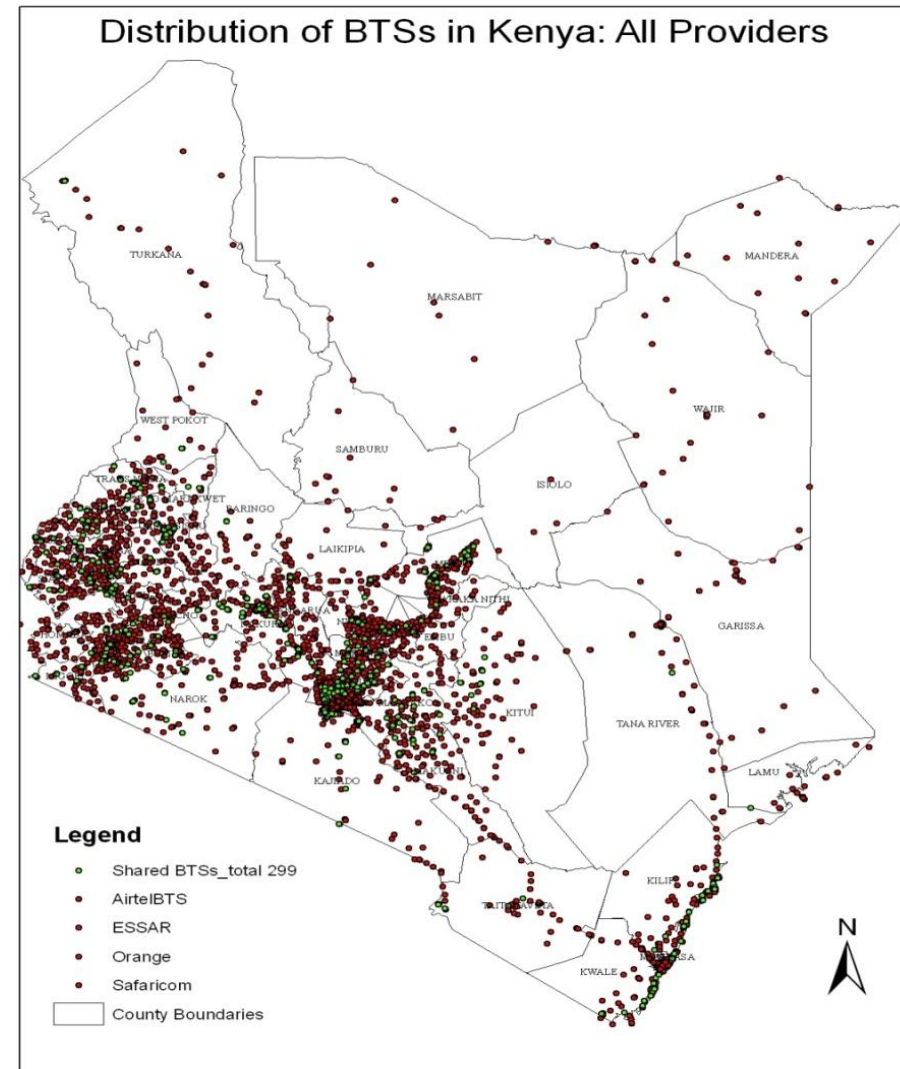 - Potential outsourcing by the providers

Number of Licensed BPOS

ICT service exports (BoP, current US$)
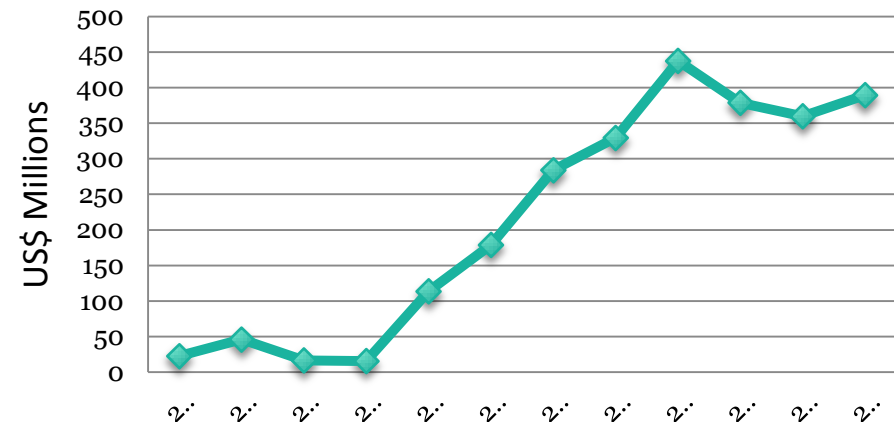
Effect on Macroeconomy

- Issue:
  - Effect on Accessibility
- Methodology
  - Trend analysis of **BTS**
  - Product differentiation
- Interpretation
  - Distribution of BTS mirrors our population distribution
  - Development corridors along the railway, high productive land

Distribution of BTSs in Kenya: All Providers

Legend
- Shared BTSs_total 299
- AirtelBTS
- ESSAR
- Orange
- Safaricom
- County Boundaries

Effect on Macroeconomy

- Issue
  - Effect on Affordability
- Methodology
  - Trend analysis on prices
- Findings
  - Inverse relationship between HHI and average tariffs

- Interpretation
  - The finding is consistent with economic theory

Average Tariffs

Legend: on net; To another mobile network; To a fixed network; HHI
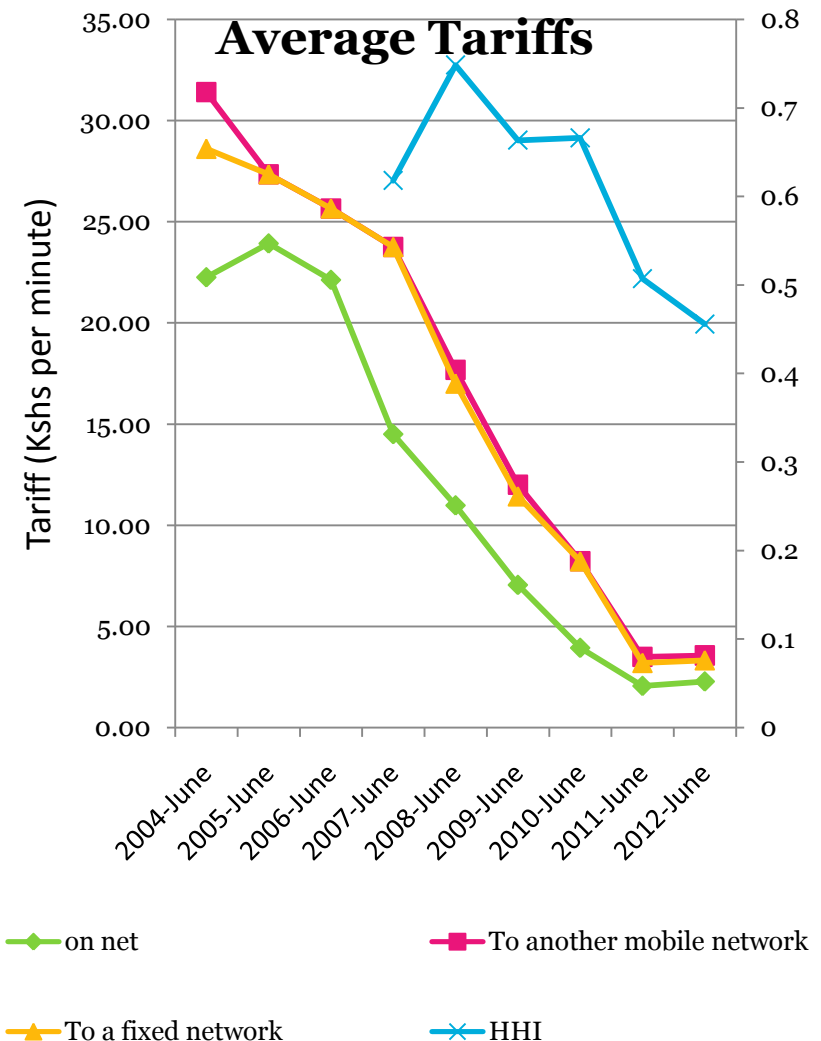
Effect on Macroeconomy

Product Differentiation

- Short messaging service (SMS)
- Telephone Directory
- Data/internet (98.9% of total internet subscription)
- Mobile tunes/music
- Mobile money (transactions of up to USD 14 million daily)
  - Facilitate trade
  - Pay utility bills & school fees
  - Bank transactions
  - top-up airtime
  - Charity

MNO	Airtime sharing	Airtime credit	Mobile money
Safaricom	√ sambaza	√ Okoa Jahazi	√ MPESA
Airtel	√ Me2U	√ Kopa credo advance	√ Airtel money
Essay (yu)	√ Share airtime	√ yuCredo	√Yu cash
Telkom Orange	√ Credit transfer	pewa	√Orange cash

Competition effect on Safaricom Stock

- Issue
  - Effect of competition on Safaricom Stock
- Methodology
  - Regress Safaricom stock on lagged values, past share volumes, competition efect

- Findings
  - Competition had no effect

| Variable	A	B
Price (-1)	0.580 *(4.695)*	0.583 *(4.701)*
Price (-2)	0.411 *(3.353)*	0.409 *(3.326)*
Competition dummy	0.000 *(0.054)*	0.000 *(0.096)*
NASI		0.000 *(-0.117)*
Structural dummy	0.006 *(3.062)*	0.006 *(2.950)*
Shares volume	0.003 *(6.369)*	0.003 (6.354)
Shares vol (lag 3)	-0.001 *(-2.393)*	-0.001 *(-2.396)*
Constant	-0.013 *(-1.261)*	-0.013 *(-1.232)*
R²	0.994	0.994
F-stat (p value)	16239.80 *(0.000)*	14869.50 *(0.000)*

Impact of Competition Safaricom N Share

- Issue:
  - Impact on the stability of NSE
- Methodology
  - Regress NASI on lag, safaricom capitalization, competition proxy
- Findings
  - Safaricom stock had no impact on stability of NSE
  - Competition proxy had no impact
- Interpretation

Variable	A	B
Standard Deviation Capitalization /NASA (-1)	0.003 *(1.034)*	0.087 *(0.216)*
Safaricom Capitilization	0.000 *(0.340)*	*0.012* (0.508)
Competition Proxy	0.000 *(0.178)*	-0.008 *(-0.544)*
Constant	0.003 *(1.034)*	0.087 *(0.216)*
R²	0.999	0.999
F-statistic *(p-value)*	125856.00 (0.000)	178909.60 *(0.000)*

Proposed Retail Price Floor

- Issue:
  - Evaluation of proposed introduction of price floor
- Methodology
  - Economic Analysis of Price floor
- Interpretation
  - DWL : Social loss
  - Consumer loss : Equity ?
  - Producer surplus may used for rent seeking &
- Solution
  - Set price floor
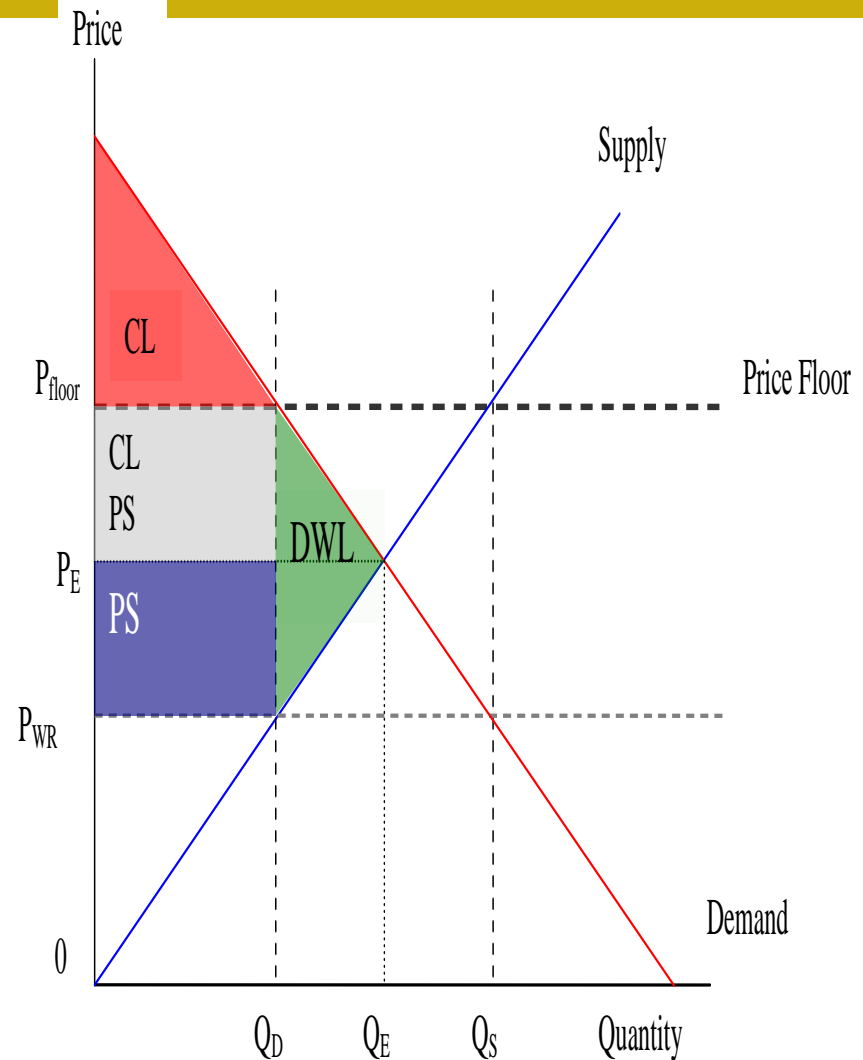
Conclusion

- Conclusion
  - Trend analysis reveal a positive relationship between total tax revenue and competition
  - **Based on regression analysis competition had no impact on tax revenue instability**
  - **Based on causality test, competition was a good predictor of voice market profitability**
  - Trend analysis implies positive relationship between total employment and competition proxy
  - Trend analysis implies positive relationship between competition and investment with some qualification

Conclusion

- **Competition and Airtime tariff had no impact on the inflation**
- Trend analysis implies the direct relationship between affordability and competition
- The distribution of BTS suggest easy accessibility because it mirrors population distribution
- Regression analysis shows that competition had no impact of prices of safaricom stock
- Safaricom Stock and competition had no impact on the stability of NSE
- Price floor would be inefficient because it would create social cost