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The Effectiveness of Application LRIC (Long Run Incremental Cost) in the Jordanian Telecommunication Companies (Case Study:Zain, Orange & Umniah)

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Abstract
This Study aims to investigate in the effectiveness of application LRIC (Long Run Incremental Cost) in the Jordanian Telecommunication Companies, to achieve the main goals of this study, the researcher decides to distribute Questionnaire to the financial decision makers in these companies which are represented by: Financial Managers, Cost Accountants, Accounts managers (Chief Accountants) and Quality Assurance Managers.The researcher used several axes to the questionnaire which presented to the target audience in the three companies (Orange, Zain & Umniah), and these axes were formulated in: Financial Performance, Operational Performance & Competitive Performance, through these axes the researcher put some questions he think it would be able to disclosure of the fact the application of the LRIC model in the companies above.The result of this study came under the researcher expectations, where indicates the existence of a correlation between the applying LRIC models on the Jordanian Telecommunications Companies and (Financial Performance, Operational Performance & Competitive Performance) But in varying degrees.
Keywords: (LRIC) Long Run Incremental Cost, Telecommunications Regulatory Commission (TRC), Jordanian Telecommunication Industry (JTI), Jordan Mobile Telephone Services Company (Zain), Jordan Telecom Company (Orange).

1. Introduction

The standard of Long-Run Incremental Cost (LRIC) is increasingly applied by regulatory authorities for purposes of setting cost-based prices. The reason is that costs on the basis of LRIC correspond to those that a firm must meet in a vigorously competitive market. So if a telecommunications operator has significant market power or is dominant in a market, the application of this standard gives the regulatory authority assurance that prices are set in conformity with competitive market conditions. The concept of the LRIC costing model is reflected in the principles to guide the OUR (Office of Utilities Regulation: www.our.org.jm) in the determination of costs and to guide the industry in making submissions to the Office regarding cost based rates.

It is generally accepted that the LRIC method gives the regulating authority an in-depth tool for identifying the effective costs linked to electronic communication networks. The method is based on economic theory and is considered today as “best practice” within cost determination in the interconnection and access markets. An overview from BEREC1 shows that most of the European regulators use a LRIC model as a starting point for determining cost oriented access prices.

LRIC is an abbreviation for “long run incremental cost”. It is these costs that the service providers must base their pricing on in a market with effective competition. A regulated price should mimic the prices that would have arisen in a market with effective competition, since this gives the providers incentives to produce the demanded service at the lowest possible cost and because the operators that demand the service are given incentives to optimize their own investment decisions. Thus, the price controls may contribute to effective utilization of public resources. There may also be other considerations that the Authority finds relevant to emphasize when deciding the regulated price.

A fundamental principle of economic efficiency is that the price should be equal to the short-term marginal cost of offering the service, i.e. the extra short-term cost that the provider is faced with when producing an extra unit of a service. However, the costs related to electronic communication networks largely consist of fixed costs (and overheads), and the economies of scale are substantial. This implies that the cost of offering a marginal increase for a specific service is very small. A regulated price that is equal to the short-term marginal cost would therefore result in the provider not being able to cover his fixed costs (and overheads). The provider will not therefore achieve a sufficient return on invested capital and will lack incentives to invest.

The LRIC method therefore uses a time frame that is long enough for several costs in the production to be variable. If the time frame is long enough, all types of input factors in the production may be regarded as an increase in the capacity level that can be adapted to the demand over time. The long-run incremental costs also include production capital as a variable factor in the production. Price controls that are based on prevailing efficient production costs will help to give the right signals to operators that aim to optimize their own

investment decisions.

A key element of the LRIC method is to define the increment to be calculated. An increment may be defined as the cost of producing an extra unit of a service, as the sum of the total production of a service, as the sum of the production of a group of services (e.g. telephony services) or as the sum of the production of all services. The difficulty in defining a "large" increment is that the costs get so aggregated that it becomes difficult to demonstrate that the price for the regulated service(s) is cost-oriented. On the other hand, an increment that is "too small" may lead to both practical and method-related challenges, since it will generally be the case that the smaller the increment, the less robust the cost modeling.

A replacement cost (current cost) is used in the LRIC method to calculate the value of the individual network elements. This is the current cost of investing in new equipment that has equivalent functionality as the original equipment, and it is this cost that a new operator aiming to develop a new equivalent network will be faced with. Depending on how "equivalent functionality" is defined and for which network elements replacement costs are used, the use of replacement cost could recreate the conditions as they would have been under effective competition.

Furthermore, economic depreciation is the most common method of depreciation. Expensing the investment in line with the equipment's contribution to production of the service over time is the easiest way to highlight the effective cost of offering the service at a particular point in time. The calculation of the depreciation for the network elements over time also takes into account the capital cost of the investment and operation of the equipment. In order to estimate the hurdle rate on invested capital, the WACC method is normally applied. WACC stands for Weighted Average Cost of Capital and is the most recognized method for calculating a fair expected return.

2. The Study Importance

The importance of this study Demonstrates directly through its address, where this study provides a case study of the result of the application LRIC model in the Jordanian Telecommunication Companies represented by (Zain, Orange & Umniah) through Solicit the views of financial decision-makers in these companies in the application process and its results.

3. The Study Problem:

In light of high competition; both the consumer and Telecommunications Company's face a difficulty in determining the best price for a product or service from telecommunications companies, so this research tries to highlight the results of application the LRIC Model from the telecommunication Companies opinion, in other words; is the application of LRIC Model Characterized by effectiveness?

4. The study population & the study sample:

4.1. The study populations : Jordanian Telecommunications company are Represent the study population for this study, in Jordan there are three Telecommunications companies:

- Jordan Telecom Company ("Orange")
- Umniah Mobile Company ("Umniah")
- Jordan Mobile Telephone Services Company ("Zain")

4.2. The study Sample: Due to the small size of the study population the researcher decided to be a sample of the study is the entire population of the study so that consists of the three companies mentioned above, (Zain, Orange & Umniah).

5. Literature Review:

The table (1) below shows the empirical literature reviews on the impacts of mobile termination rates:

Table (1)
Empirical literature reviews on the impacts of mobile termination rates

Author(s)	Dependent Variable(s)	Independent Variable(s)	Data/time	Source	Methodology	Main conclusion and recommendation
Genekos and Valletti (2011)	Prices, firm profits	MTRs (instrumented by regulation), prepaid best deal dummy	Matching difference sources from 1999 to 2006 (collected quarterly) from mobile operators in 24 countries	Cullen International/ Teligen/ Merrill Lynch	IV approach with fixed-effect specification	The authors estimated the impacts of MTRs on retail prices and the operators' profits. Their results showed that MTRs have significantly negative impacts on retail prices.
Hansen and Andersson (2009)	Function of firm profits, market share and no. of customers	Functions of MTRs, average minutes and no. of mobile operators	26 mobile operators from 9 countries in north-western Europe from the 1st quarter of 2003 to the 3rd quarter of 2006	Ovum/ Wireless Intelligence	GMM cluster-fixed effect	The authors used the multi-firm competition model and applied it to the econometric regression to estimate the impacts of MTRs on the operators' profits. Their results showed that the hypothesis of profits not being affected by cutting MTRs cannot be rejected. They therefore suggested that lower MTRs in a mature market would not necessarily benefit consumers.
Veronese and Pesendorfer (2009)	penetration rates, minutes of use, prices	retail regime, MTRs, GDP per capita, population density, fixed penetration, region dummy	39 OECD countries from 2002 to 2007	Merrill Lynch/ Teligen/ ITU/ World Bank	country random effect specification with the fixed components estimated by GLS	The authors estimated the impacts of MTRs on social welfare proxies consisting of mobile penetration, minutes of use and retail prices (proxy by average revenue per minute). Their results showed that MTRs have significantly positive effects on mobile penetration and retail prices, but the results were not robust in the minute of use variable.
Cunningham, Alexander, and Candeub (2010)	mobile subscription	Retail regime, MTRs, no. of mobile operators, government ownership, Internet subscription, fixed termination rates, pop. Density, GDP, average age of population, interaction between no. of mobile operators and MTRs, etc.	85 countries in 2003 (apply 2004 data for dependent variable)	ITU/ Global Comms Database/Merrill Lynch	OLS and measuring the explanatory variable with time lag whenever possible	The authors estimated the impacts of MTRs on mobile subscriptions per person. They found that MTRs had a significantly positive effect on mobile subscriptions; however, the results of the coefficients on the interaction between MTRs and the numbers of operators are significantly negative. These results suggested that MTRs can be considered as a weaker variable if the market is competitive.
Dewenter and Kruse (2011)	Dependent: diffusion rates	retail regime, competition, prepaid card, fixed telephone lines per capita, population, population density, GDP per capita (retail regime and competition also instrumented with several regulation variables)	84 countries from 1980 to 2003	ITU/ World Bank published data from several regulators	IV approach with fixed effect specification	The authors compared CPP and RPP regimes, similar to Littlechild (2006), but focused on the penetration rate. They found that there is no significantly different impact between CPP and RPP and concluded that the RPP regime is preferred as it can avoid the regulatory cost.

*** German National Library of Economics: 23rd European Regional Conference of the International Telecommunication Society, Vienna, Austria, 1-4 July 2012**

6. Data Collection

The preparation of a questionnaire to determine the effect the application of the LRIC Model in the Jordanian Telecommunications Industry (JTI): Performance, Efficiency and Implementation Issues" (Case Study on the Jordanian Telecommunications Companies) and formed the utility of a group of axes study and the number of paragraphs in each area.

Note: the researcher distributed 12 questionnaire to the employees mentioned above and the ratio of a restoration was 100% because the process of filling the questionnaire in a manner personal interview.

Table (2) shows the Number of paragraphs in each area in the questionnaire distributed to the study sample, and table (3) shows too the (LIKART) measure which used in the data analysis.

Table (2)
Number of paragraphs in each area

S.R	Subject	Number of paragraphs
1	Financial Performance	8
2	Operational Performance	8
3	Competitive Performance	6
	Total	11

The use of a five measure Dimensions (LIKART) in all questions of the questionnaire strength of:

Table (3)
Likert Method

Appendix No (1) shows the Questionnaire was distributed to the targeted groups as mentioned below:

- Financial Managers
- Accountants
- Accounts managers (Chief Accountants)
- Quality Assurance Managers

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
5	4	3	2	1

6.1. Constancy of Data collected tool (The Questions in the questionnaire)

Because the personal interview in this study depends on the questions that existing in the questionnaire, the researcher use Cronbach's Alpha Coefficient to measure the consistency of the questions in the questionnaire that was introduced to the Respondents. And the Table No (4) below shows the result of the Cronbach's Alpha Coefficient according with the questionnaire paragraphs:

Table (4)
The result of the Cronbach's Alpha Coefficient

S.R	Area	No. Of Paragraph	Cronbach's Alpha Coefficient	Constancy *
1	the effect of the LRIC model application on the Financial Performance	4	0.920	0.959
2	impact degree of adapting the LRIC model in the company through the Financial Performance indicators	4	0.902	0.950
3	the effect of the LRIC model application on the Operational Performance	4	0.809	0.900
4	impact degree of adapting the LRIC model in the company through the Operational Performance indicators	4	0.909	0.953
5	the effect of the LRIC model application on the Competitive Performance	3	0.819	0.904
6	impact degree of adapting the LRIC model in the company through the Competitive Performance indicators	3	0.919	0.958
T	Total	22	0.931	0.964

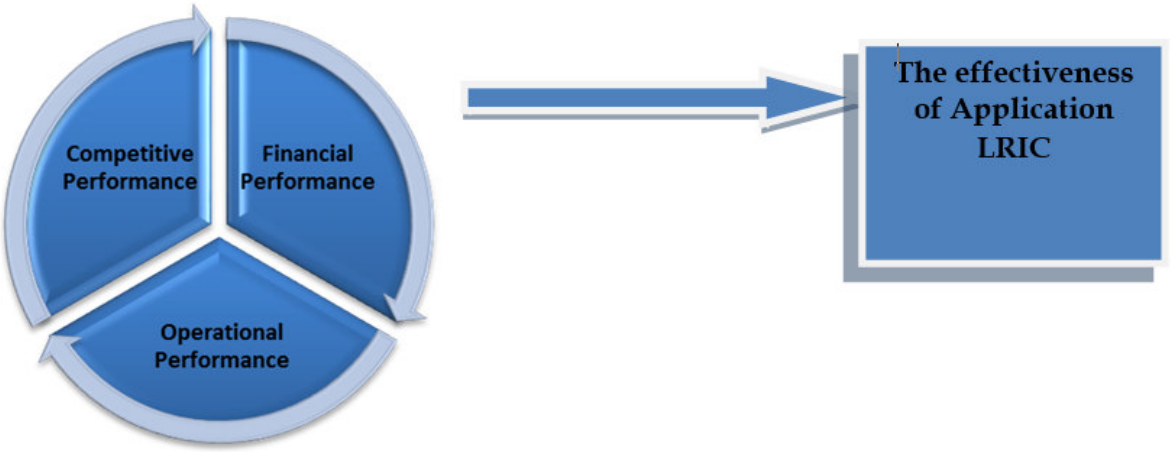
*** The square root of Cronbach's Alpha Coefficient**

It's clear from the results shown in the table (59) that the value of Cronbach's alpha coefficient was high for each area, ranging from (0.809 and 0.920). As well as the value of the alpha coefficient for all the paragraphs of the questionnaire (0.931), As well as the value of consistency was high for each area, ranging from (0.900 and 0.959). As well as the value of the stability of all the paragraphs of the questionnaire (0.964), this means that the reliability coefficient is high.

7. The Study Model

The figure below shows the Virtual Model for this study, using the Independents & Dependents Variables:

Figure (1)
The Virtual Model of Study



7.1. Independents Variables

- Financial Performance
- Operational Performance
- Competitive Performance

7.2. Dependents Variables

- The effectiveness of Application LRIC

8. The Study Hypothesis

8.1. The 1st Hypothesis: There is a significant relationship between the effectiveness of application of LRIC models on the Jordanian Telecommunications Companies and Financial Performance.

8.2. The 2nd Hypothesis: There is a significant relationship between the effectiveness of application of LRIC models on the Jordanian Telecommunications Companies and Operational Performance.

8.3. The 3rd Hypothesis: There is a significant relationship between the effectiveness of application of LRIC models on the Jordanian Telecommunications Companies and Competitive Performance.

9. Data Gathering from the persons who answered the questionnaire

Table (5)
Questionnaire Result: Financial Performance

No.	Subject	arithmetic average	standard deviation
1	ROE	2.59	1.378
2	ROA	2.47	1.164
3	ROS	2.19	1.195
4	GPM	2.30	1.554

Table (6)
Questionnaire Result: Operational Performance

No.	Subject	arithmetic average	standard deviation
5	Revenue	2.59	1.378
6	EBITDA	2.47	1.164
7	Net Profit	2.19	1.195
8	CAPEX	2.30	1.554

Table (7)
Questionnaire Result: Competitive Performance

No.	Subject	arithmetic average	standard deviation
01	Customers	2.59	1.378
02	Market share	2.47	1.164
03	Service Cost	2.19	1.195

10. Hypothesis testing

10.1. Test First hypothesis:

Table (8)
Result of Statistics

Subject	Statistics	Relationship between LRIC Model & Financial Performance
LRIC Model	correlation coefficient	0.835
	The level of significance	0.000
	The size of the sample	12

From the table above the value of the level of significance equals 0.000 and less than 0.05 also, the value of the correlation coefficient is equal to 0.835, which indicates the existence of a correlation between the effectiveness of application of the LRIC models on the Jordanian Telecommunications Companies and Financial Performance.

10.2. Test Second hypothesis:

Table (9)
Result of Statistics

Subject	Statistics	Relationship between LRIC Model & Operational Performance
LRIC Model	correlation coefficient	0.921
	The level of significance	0.000
	The size of the sample	12

From the table above shows that the value of the level of significance equals 0.000 and less than 0.05 also the value of the correlation coefficient is equal to 0.921, which indicates the existence of a correlation between the effectiveness of application of LRIC models on the Jordanian Telecommunications Companies and Operational Performance.

10.3. Test Third hypothesis

From the table (10) below shows that the value of the level of significance equals 0.000 and less of 0.05 and that the value of the correlation coefficient is equal to 0.885, which indicates a correlation between the effectiveness of application of the LRIC models on the Jordanian Telecommunications Companies and Competitive Performance.

Table (10)
Result of Statistics

Subject	Statistics	Relationship between LRIC Model & competitive Performance
LRIC Model	correlation coefficient	0.885
	The level of significance	0.000
	The size of the sample	12

11. The Results of the study :

11.1. Under the Financial Performance:

The value of the level of significance equals 0.000 and less than 0.05 also, the value of the correlation coefficient is equal to 0.835, which indicates the existence of a correlation between the effectiveness of application of the LRIC models on the Jordanian Telecommunications Companies and **Financial Performance**.

11.2. Under the Operational Performance:

The value of the level of significance equals 0.000 and less than 0.05 also the value of the correlation coefficient is equal to 0.921, which indicates the existence of a correlation between the effectiveness of application of the LRIC models on the Jordanian Telecommunications Companies and **Operational Performance**.

11.3. Under the Operational Performance:

The value of the level of significance equals 0.000 and less of 0.05 and that the value of the correlation

coefficient is equal to 0.885, which indicates a correlation between the effectiveness of application of the LRIC models on the Jordanian Telecommunications Companies and **Competitive Performance**

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