

# Telecommunications Sector Expansion and Poverty Reduction in China, an Empirical Analysis

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**Abstract.** Telecommunications sector has witnessed robust growth round the globe and is contributing to improve the living standards of human beings as well as reducing poverty. Despite this important fact, research in particular area is not as abundant as other areas such as relation between telecom sector and economic development etc. Taking popularization rate of telephones as indicator of telecommunications sector and household consumption expenditures as indicator of improvement in living standard & poverty reduction, we have analyzed the data for more than two decades taken from China and found significant positive relationship between two indicators which ultimately leading to acceptance of hypothesis that telecommunications expansion is effective tool for poverty reduction .

**Keywords:** Telecommunications, Poverty, Living Standard, Popularization Rate of Phones, Household Consumption Expenditures.

## 1. Introduction

Studies on relations between telecommunications sector and economic development started in 1963 when Jipp found a positive relation between telephone density and GDP [1] and since then a number of researchers have made studies in this area upholding the basic finding of Jipp regarding positive relation of telecommunications sector growth and economic development in one way or other. The research regarding relation between economic development and poverty reduction also contains huge piles of academic papers but the studies regarding relation between telecommunications expansion and poverty reduction are relatively less discussed and more research is needed to make telecommunications as effective tool for poverty reduction. As concluded in [2] telecommunications play vital role in various social services and stimulate economic growth and enhance life quality. A recently issued World Bank report [3] reveals that people in some developing countries have more access to mobile phones than clean drinking water, electricity facility or bank accounts and mobile are most ubiquitous modern technology with presently 6 billion mobile subscribers accounting for 3/4th of global population.

China was a weak economic entity with abundance of poverty at the establishment of new China in 1949 and as per [4] annual average growth was less than 1% during the period from 1840 to 1949 as ultimate result of disturbances and conflicts lasted throughout this era of more than 100 years. Now China is world's fastest growing major economy maintaining average growth rate around 10% during last three decades. Today China is second largest economy in the world in terms of nominal Gross Domestic Product (GDP) of US\$ 7,298,096,609,545 year of 2011 which is only second to United State's US\$ 15,094,000,000,000 [5]. China adopted the policy of opening and reform in 1978 and since them it's economic performance is impressive which has been widely accepted globally. A glimpse of this recognition is contained in World Bank's report [6] which inter-alia states that "By any standard, china's economic performance over the last three decades has been impressive. GDP growth averaged 10 percent a year, and over 500 million people were lifted out of poverty. China is now the world's largest exporter and manufacturer, and its second largest economy."

Telephone services were introduced in china in 1881 [7] and at it's establishment in 1949 there were 0.22 million telephone subscribers in China. However now China is among largest markets for

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telecommunications and by 2011 there are 285.115 million landline telephones in China with teledensity of 21.158. The mobile phone scenario is more promising with 986.253 million mobile phones out of global aggregate of 5.9 billion accounting for about 1/6th of world's mobiles. China has mobile phone penetration of 73.19% against world's 87% [8]. In 2012 mobile phone subscribers are more than one billion [9]. ]In this paper we study the relation telecommunications sector expansion with poverty reduction and better life however due to lack of official data of poverty headcounts we have used data of per capita household consumption expenditures as indicator of poverty reduction as well as living standard improvement. For telecommunications sector expansion we have used the indicator of popularization rate of telephones including mobile phones. This data has been obtained for the years from 1990 to 2010 from China Statistical yearbook and availability of uniform data is core reason to choose this period for analysis. Empirical results have been obtained by simple regression model.

## 2. Data

Data regarding popularization rate of telephones including mobile phones for the year from 1990 to 2010 is mentioned below. Moreover over all situations of mobile and fixed line phones for the same year has also been mentioned as under:

Year	Phone Subscribers ( (in 10,000)			Popularization rate of telephone including mobile phones (sets/100 persons)
	Fixed	Mobile	Total	
1990	685.0	1.8	686.9	1.11
1991	845.1	4.8	849.8	1.29
1992	1146.9	17.7	1164.6	1.61
1993	1733.2	63.9	1797.1	2.20
1994	2729.5	156.8	2886.3	3.20
1995	4070.6	362.9	4433.5	4.66
1996	5494.7	685.3	6180.0	6.33
1997	7031.0	1323.3	8354.3	8.11
1998	8742.1	2386.3	11128.4	9.95
1999	10871.6	4329.6	15201.2	13.12
2000	14482.9	8453.3	22936.2	19.10
2001	18036.8	14522.2	32559.0	26.55
2002	21422.2	20600.5	42022.7	33.67
2003	26274.7	26995.3	53270.0	42.16
2004	31175.6	33482.4	64658.0	50.03
2005	35044.5	39340.6	74385.1	57.22
2006	36778.6	46105.8	82884.4	63.40
2007	36563.7	54730.6	91294.3	69.45
2008	34035.9	64124.5	98160.4	74.29
2009	31373.2	74721.4	106094.6	79.89
2010	29434.2	85900.3	115334.5	86.41

In the following table, data regarding our indicator of poverty reduction and living standard improvement namely per capita household consumption expenditure from 1990 to 2010 is mentioned. Our under study indicator has two values i.e current value in Chinese Yuan and constant value with year 1978 as base or reference year. GDP at current value is also mentioned for wider look. We have used indexed value with reference year 1978 for our analysis. The data is as under:

Year	GDP (100 million Yuan)	Per capita household consumption expenditures (in Yuan)	
		At Current price	Index 1978=100
1990	18667.8	833	229.2
1991	21781.5	932	249.0
1992	26923.5	1116	282.0
1993	35333.9	1393	305.8
1994	48197.9	1833	320.0
1995	60793.7	2355	345.1
1996	71176.6	2789	377.6
1997	78973.0	3002	394.6
1998	84402.3	3159	417.8
1999	89677.1	3346	452.3
2000	99214.6	3632	491.0
2001	109655.2	3887	521.2
2002	120332.7	4144	557.6
2003	135822.8	4475	596.9
2004	159878.3	5032	645.3
2005	184937.4	5573	695.2
2006	216314.4	6263	761.9
2007	265810.3	7255	843.4
2008	314045.4	8349	916.8
2009	340902.8	9098	1001.6
2010	401202.0	9968	1062.6

### 3. Results

In our analysis we have used linear regression model to regress per capita household consumption expenditures (the depended variable) on popularization rate of phones (independent variable) and SPSS package has been used for the purpose. The results are summarised as under:

R	0.985
R Square	0.971
Adjusted R Square	0.969
Constant's t value	20.530
Constant's significance value	0.000
Standardized Beta value	0.985
Beta's t value	25.130
Beta's t value significance	0.000
F value	631.523
F's significance	0.000

From the above results, we conclude that both the coefficients of constant and beta are significant as significant t values of constant and beta are less than 0.05. F is also significant as its significance value is

less than 0.05. The results generally depict a positive significant between dependent and independent variables.

#### **4. Conclusion**

In this paper we while taking relevant data of China from official sources regressed the per capita household consumption expenditures on popularization rate of phones and found a positive significant relation between the two variables. So we concluded that there is positive relation between telecommunications sector expansion and improvement in living standard coupled with decrease in poverty in China.

#### **5. References**

- [1] Jipp A (1963), *Wealth of Nations and Telephone Density*, Telecommunications Journal.
- [2] International Telecommunications Union, *The Missing link, Report of the Independent commission for worldwide telecommunications development*, ITU, December 1984--January 1985.
- [3] The World Bank, *Information and Communications for Development 2012: Maximizing Mobile*.
- [4] Wu Li, Sui Fu Min, Zheng Lei, *China's Economy*, Translation by David Gu, China International Press, 2010.
- [5] The World Bank, <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>, accessed on 20th August 2012.
- [6] The World Bank and the Development Research Center of China's State Council, *China 2030: Building a Modern, Harmonious, and Creative High-Income Society*.
- [7] Huurdeman Anton A, *The worldwide history of telecommunications*, John Wiley & Sons, Inc. 2003.
- [8] International Telecommunications Union, <http://www.itu.int/ITU-D/ict/statistics> accessed on 20th August 2012.
- [9] China Daily dated 30th March 2012, *China mobile phone users exceed 1 billion*.