INFORMATION AND COMMUNICATIONS TECHNOLOGY AS A POVERTY REDUCTION TOOL

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Abstract
In a world where the scourge of poverty affects more and more people, we believe that any possible wicket, any possible tool to reduce poverty must be exploited. In this context, due to the expansion that information and communications technology has experienced in recent years in developed and in developing countries, in poor countries, starting from the premise that poverty means not just the lack of resources to cover basic needs, food, clothing, housing, but also limiting access to information, our work is projected as an analysis of ICT’s impact in poverty reduction. Our research is an extension of our latest work “A view on the role of ICT in the fight against poverty”, and is built on a review of the existing studies from the specialized literature which analyze the relationship between poverty and ICT and confirms the role of ICT in reducing poverty. The literature review that highlights the role of ICT in poverty reduction is followed by a concise analysis of ICT penetration in Romania.

Keywords: information and communications technology (ICT), poverty reduction, ICT penetration, Romania.

Classification JEL: I39, D80, I32, I38, L86

1. Introduction

In the beginning of Romania’s transition to the market economy poverty represented a marginal phenomenon, today poverty represents a major problem affecting a considerable number of people across the world. According to a World Bank report, created in association with the International Monetary Fund, the global number of people living on less than $1.90 / day reached 9.6% in 2015. The situation is alarming even in Romania, which is the “champion” of the European Union regarding the relative poverty rate, which reached a record level of 25.4% in 2014 and 2015; 2016 is expected to follow the same trend. Therefore, the economic and financial crisis started in 2008, despite technological advances, is reflected in the poverty statistics. This causes a concern increasingly raised between decision makers and researchers in the field to find solutions, appropriate policies and instruments for poverty reduction.

We live in a knowledge society and knowledge, information, mean economic, political and social power. Due to the expansion that ICT has experienced in most recent years in many emerging countries, governments focus their attention on developing information and communications technologies (ICTs), "deemed as a key in reducing poverty through the impact these technologies have on society and on economy: providing access to education through information and communication infrastructure development and increasing labor productivity" (Urean et al., 2016).

National Strategy on the Digital Agenda for Romania aimed directly the ICT sector to contribute to economic growth (Roemer&Gugerty (1997) consider poverty reduction as one of the benefits of economic growth) and Romania’s competitiveness, “both through direct actions such as support for e-Commerce sector and effective development of the Romanian ICT sector and indirect actions such as increasing efficiency and reducing public sector costs in Romania, improving the productivity of the private sector by reducing administrative barriers in relation to the state, improving the competitiveness of the labor force in Romania and not only.” (National Strategy on Digital Agenda, 2014).

Romania is a country of paradoxes: 1. The paradox is that while data on the economy are optimistic, despite the upsurge of GDP, despite the economic growth forecast for 2016 on domestic demand and measures of fiscal relaxation, the statistics on poverty are worrying; 2. The second paradox is that in European Union countries rankings,
conducted by Internet World Stats, in 2015 Romania is placed 8th in terms of Internet use, while its poverty rate ranks first place between all EU countries.

Figure no.1. European Union - Top 10 Internet Countries – November 2015
(millions of users)

Source: authors’ processing based on the data provided by Internet World Stats

2. Poverty and ICT – the conceptual framework

2.1. Poverty definitions

Urean et al. (2016) consider that defining poverty is not simple and unambiguous, although it seems practically conventional; the specialized literature identified conflicting points of view on the concept and methodology for measuring poverty.

The World Bank Organization describes poverty in the following way: “Poverty is hunger. Poverty is lack of shelter. Poverty is being sick and not being able to see a doctor. Poverty is not having access to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time.

Over time, some of the most eminent sociologists gave a series of definitions of poverty that we will arrange in chronological order: Rowntree (1901) “A family is counted as poor if their total earnings is insufficient to Obtain the minimum necessities of merely physical efficiency”; Beveridge (1942) “as regards the minimum income needed a person of working age for subsistence during interruption of earnings is sufficient to take into account food, clothing, fuel, light and various household expenses and rent, plus a margin to be allowed for inefficiency costs”; Henderson (1975) “To the extent that poverty is defined by reference to an acceptable minimum standard of living, is a relative concept. [It requires] a value judgment [which] should take account of productivity in the economy and community attitudes. To determine a minimum standard of living is difficult given the diversity of lifestyles and values of Australian society and the multitude of issues that must be considered, such as food, shelter, clothing, health and education”; Townsend (1979) “Individuals’ families and groups in the population can be said to be in poverty when they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged or approved, in the societies to which they belong”; Ravallion (1994) “Poverty can be said to exist in a given society when one or more persons do not attain a level of economic well-being deemed to constitute a reasonable minimum by the standards of that society.”

2.2. ICT’s definitions

UNESCO (2002) stated that “ICT is the combination of informatics technology with other related technologies, specifically communication technology” and represents a field of work and study that “includes technologies such as desktop and laptop computers, software, peripherals, and connections to the Internet that are intended to fulfil information processing and communications functions” (Statistics Canada, 2008).

Flor (2001) considered that “ICT is the collective term given to the new generation (second and third) information technology spawned by the merger of computers and telecommunications. ICT may be Web-enabled, networked, or stand-alone; it may make available an information or knowledge system; or it may generate an
information or knowledge product or service. One feature of ICT is the convergence of media (print, audio and video – hence, multimedia) made possible by a common digital platform.

In Wikipedia we can find the following definition: “Information and communications technology is an extended term for information technology (IT) which stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information”.

In Zuppo’s opinion, the challenge of defining ICT, in a universal sense, becomes apparent when one considers that diverse applications of the term ICT exist within several contexts and treatments of the term. The continuum of definitions and applications of ICT one may encounter are further divided as the span of differences is represented in kinds rather than merely by degrees. Although the term ICT is found within a variety of contexts, there has been an underdeveloped response to the development of a framework for hierarchical classifications representing empirical definitions and applications of the term” (Zuppo, 2012).

3. The role of ICT in the fight against poverty – literature review

Most of the existing studies have mainly focused attention on the ICT’s role that on the economic, social and cultural life, while few of them that analyzed its impact in the fight against poverty, although “it is obvious that ICT contributes to GDP growth, increases labor productivity and has an undeniable role in the educational process” (Urean et al., 2016).

The first section of our study represents a concise analysis of the research literature that highlighted the role of ICT in poverty reduction and we start in this analysis from Figurees’ (2014) point of view who considered that all three components of the term “information and communications technology” add value to the development process: “access to information enables people to make informed decisions which are beneficial for both their private and professional lives; communication enables people to join forces, share views and ideas, and co-create solutions, thereby enabling them to address their own individual problems; technology helps us to gather, access and disseminate information more quickly”.

In the research literature there is no universally accepted opinion confirming the importance of ICT in poverty reduction. Kim (2014) identified two groups of people: the supporters of ICT which believed that the new technology is critical for emerging countries and on the other side, the skeptics which believe that investment in ICT is not a priority. In his opinion, “ICT investments can reduce poverty by increasing not only economic development, but by also increasing other aspects of development such as political inclusion, freedom of speech, and gender equality. While investments in technology in general can reduce poverty, most of these investments mainly increase economic development. ICT investments, however, are particularly important because they reduce poverty by promoting development beyond just the economic aspect”. The group of “skeptics” was also detected by Tambo (2003). Tambo (2003) argue that this group perceived ICT as “an expensive distraction, rather than a powerful tool for empowerment of the poor”.

Among the supporters of ICT there is also Greenberg (2005) which believes that “ICTs can, and in fact must, be used as a tool in the fight against poverty, for poverty alleviation, the focus must be on poverty issues, with ICTs simply being tools and enablers. The use of ICTs can be a critical and required component of addressing some facets of poverty”.

The role of ICT in poverty reduction is also confirmed by the European Parliamentary Service (2015): “ICTs are powerful instruments to provide people with economic opportunities, knowledge and services that can alleviate poverty in all its dimension. The significance of ICTs for poverty alleviation and reduction depends on how a specific technology can be integrated into the livelihood strategies of the poor. For example, there is abundant evidence that mobile phone technology can help alleviate poverty, by providing services that were previously unavailable to poor and remote communities”. There were other researchers, like Bhavnani&others. (2008), Cardomy (2012), Sife&others (2010), who examined the role of mobile phone in poverty reduction, concluding that the deployment of mobile phones does have a multi-dimensional positive impact on sustainable poverty reduction.

According to the UNDP, “Information and communications technology has become an indispensable tool in the fight against world poverty. ICT provides developing nations with an unprecedented opportunity to meet vital development goals such as poverty reduction, basic health care, and education far more effectively than before. Those nations that succeed in harnessing the potential of ICT can look forward to greatly expanded economic growth, dramatically improved human welfare, and stronger forms of democratic government.”

The World Bank Report proposed a strategy for attacking poverty through ICTs in three ways: “promoting opportunity, facilitating empowerment and financial risk mitigation” (Cecchini and Scott, 2003).

Flor (2001) in the paper entitled “ICT and poverty. The indisputable link” explored the relationship between ICT and poverty, on the assumption that: “information generates opportunities, opportunities generate resources, access to information leads to access to resources, to opportunities that generate resources. In a knowledge society, poor information is a source of poverty”. She stated that the lower the number of Internet service providers, telephone lines,
PCs and TVs, the higher the Human Poverty Index. The study identifies four paradigms in the poverty analysis: technological, economic, structural and cultural. According to the technological paradigm, the main cause of poverty is lack of knowledge of technology, considering that rich nations are using modern technologies in industry, agriculture and other sectors of the economy. Some of the recommendations made by Flor (2001) were as follows: developing poverty reduction programs that use ICT, making the best use of the maps of poverty, governmental support for the use of ICT in education.

If is tailored to the needs of the poor and if is used in the right way and for the right purposes, ICT can contribute to poverty reduction (Kelles-Viitanen, 2003). ICT can be used to accelerate the eradication of poverty both in the more traditional sense of promoting economic opportunities, and in the modern sense, by catalyzing awareness and empowerment as well as sector strengthening. (International Institute for Communication and Development, 2014).

Someowora (2009), May (2012), Howard and Horn (2014) also analyzed the link between poverty and ICT, concluding that where the poverty rate is low, there is high access to ICT, and where the poverty rate is relative high, the access to ICT is limited.

Singh (2003) arrived to a significant conclusion, that we consider to be very relevant: “ICT is not a magic cure for hunger or poverty. However, the right information at the right time can help in finding a solution”.

4. Statistics on ICT access in Romania

Based on the utilization of information and communications technologies, Romania is placed among countries with a low level of access and utilization. There are a few important questions that need precise answers: Are there differences between urban and rural areas regarding the access to ICTs? Are there differences in the level of education? Are there differences according to age? These are just some of the questions we try to answer using the data supplied by the National Statistics Institute, data that will shape a descriptive image on ICT utilization in Romania.

4.1. Residence environment vs. ICT

In Romania, among other factors, the residence environment can be an important and determinant factor of digital stratification, differences between urban and rural are not insignificant at all, as indicated by the statistics for the 2007-2015 period:

![Figure no.2. The share of households having access to a computer, by residence in the period 2007-2015 (%)](image)

Source: authors’ processing based on the data provided by National Institute of Statistics

One of the possible explanations for this gap, in addition to the financial one, may possibly be the lack of infrastructure in rural areas in comparison to the high level of digitization in many of the Romanian cities.
4.2. Age vs. ICT

An analysis of statistical data based on the householder age, indicates that Internet use decreases where the head of the family is older:

<table>
<thead>
<tr>
<th>The age of the householder</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24 years</td>
<td>38</td>
<td>54.3</td>
<td>67.1</td>
<td>70.8</td>
<td>82.7</td>
<td>81.3</td>
<td>76.5</td>
<td>87.3</td>
<td>82.1</td>
</tr>
<tr>
<td>25-34 years</td>
<td>29.2</td>
<td>39.8</td>
<td>49.6</td>
<td>58.2</td>
<td>64.4</td>
<td>72.4</td>
<td>74</td>
<td>83.3</td>
<td>86.5</td>
</tr>
<tr>
<td>35-44 years</td>
<td>31.4</td>
<td>39.8</td>
<td>49.9</td>
<td>53.3</td>
<td>57.5</td>
<td>66.5</td>
<td>71.1</td>
<td>77.1</td>
<td>82.8</td>
</tr>
<tr>
<td>45-54 years</td>
<td>32.2</td>
<td>38.2</td>
<td>50.2</td>
<td>52.8</td>
<td>58.3</td>
<td>66.1</td>
<td>69.2</td>
<td>71.5</td>
<td>80</td>
</tr>
<tr>
<td>55-64 years</td>
<td>16.7</td>
<td>25.7</td>
<td>31.7</td>
<td>38.6</td>
<td>43.5</td>
<td>49.9</td>
<td>55.4</td>
<td>54.6</td>
<td>61.9</td>
</tr>
<tr>
<td>65-74 years</td>
<td>5.7</td>
<td>10.2</td>
<td>14.1</td>
<td>17.2</td>
<td>23.9</td>
<td>25.2</td>
<td>30.2</td>
<td>30.1</td>
<td>38.7</td>
</tr>
<tr>
<td>75 years and over</td>
<td>2.8</td>
<td>4.6</td>
<td>8.9</td>
<td>9.8</td>
<td>9.6</td>
<td>15.4</td>
<td>16</td>
<td>15.6</td>
<td>18.6</td>
</tr>
</tbody>
</table>

Source: authors’ processing based on the data provided by National Institute of Statistics

We can observe that where the householder is 16-24 years old, 82% of households have internet access, while household access to the internet decreases by 20% (61.9%) where the head of the family is older. An analysis of the frequency of internet use, by age group, indicates that young people use computers and access the Internet daily or almost daily. In case of senior citizens, even when they have a computer and Internet access, the use of ICT is extremely low.

4.3. Level of education vs. ICT

Education accompanied by residence and age is another determinant factor with a key role in influencing an ICT profile and for digital stratification. The statistics provided by the National Institute of Statistics indicate high discrepancies regarding computer use by the level of education: the number of people who use the computer and the internet increases with the level of education.
We observe that 93.2% of households whose head of the family has a higher level of education have access to a computer, compared to 22.1% of households whose head of the family has a lower level of education (primary education).

5. Conclusions

Our paper is an extended version of our latest research (Urean et al., 2016), a review of the specialized studies that have examined the role of information and communications technology in poverty reduction. This represents an important issue nowadays, which reaches alarming heights at global and national levels, Romania being at the top of the EU’s relative poverty rate. The incontestable role of ICT in poverty reduction is confirmed by most existing studies in the literature. To see who are the so-called “digital non-haves” in Romania, we continued our study with a brief descriptive analysis of the data provided by the National Institute of Statistics, analysis which allows us to conclude that factors such as the residence - urban/rural, age and level of education have a significant influence over the use of ICT. As research perspectives we intend to compare ICT indicators with poverty indicators to comprehend whether the statistical data confirms the link between ICT and poverty in our country.

6. Acknowledgements

A part of the present research was supported by the PNII-RU-TE-2014-4-2640 UEFISCDI grant “eTrajectory – students’ professional trajectory”.

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