

Digital Technologies and the Obligation to Alleviate Poverty: the Digital Divide, Information Gap and Two Forms of Poverty

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The term 'digital divide' roughly refers to a series of gaps between information and computer technology (ICT) haves and have-nots. These gaps include differences in access to information, access to appropriate ICT hardware and software; literacy rates; and ICT skill-sets. Moreover, these gaps include those between developed and developing nations and those between rich and poor in developed nations.

The digital divide encompasses a variety of gaps that bear on the world's inequitable distribution of resources and contributes to the perpetuation of absolute and relative poverty. For this reason, these inequalities raise important moral issues in distributive justice and individual fairness. This essay provides an introduction to these issues and argues that the affluent have an obligation to help the poor, which includes, but is not limited to, an obligation to address the problems associated with the digital divides.

There are two moral issues here – one concerning the state and the other concerning individuals. States are political entities subject to different moral principles than individuals. For example, legitimate states are presumed to be morally justified in enforcing its rules for how citizens are required to behave by coercive measures like incarceration or death; no individual is permitted to do this in his capacity as an individual.

We have very little to say about the moral obligations of states in this regard because much more political theory than can be discussed here is needed to even begin to find common ground to resolve this issue. Although most Europeans take the welfare state for granted, this is not so in the US at this

uncture. The issue of whether the state is morally justified in coercively tax people for the purpose of redistributing wealth to *US citizens* is hotly contested at this moment and of particular importance in the 2012 presidential race. Our concern here will largely, albeit not exclusively, be limited to the moral obligations of individuals. Claims about the state's obligations are somewhat more tentative but are included to give the reader a sense of the two different dimensions of the problem.

1. Local and Global Inequalities in the Distribution of Wealth

1.2 billion of the world's seven billion people live on less than \$1 per day, while nearly 3 billion live on less than \$2 per day (Hunger, UN Resources). This is the kind of poverty that is *absolute* in the sense that people do not have sufficient resources to meet their basic needs on a consistent basis.

People in the developing world characteristically live in conditions of absolute poverty, lacking consistent access to adequate nutrition, clean water, health care, and education, as well as facing a significant probability of death from a variety of causes easily prevented or treated in affluent nations: 925 million people lack sufficient nutrition; 1 billion lack access to clean water; 1 billion are illiterate; 10.9 million children under 5 die every year of malnutrition in a world where the food disposed of as *garbage* by affluent persons is enough to save most, if not all, of these lives (Child Hunger, UN Resources). 98% of the world's hungry live in the developing world (Child Hunger, UN Resources).

Poverty in the developed or *affluent* world is generally "relative" in the sense that someone who is "poor" has enough to meet her needs but has significantly less than what others around him have. Although relative poverty is thus not life threatening, it remains a problem because moral worth – and thus one's sense of self-worth – is frequently associated with economic worth and because relative poverty correlates highly with crime.

There is some absolute poverty in the US, which can be seen in the form of homelessness and in the use of food banks and other government services intended to reduce poverty. For example, estimates of the number of people experiencing a period of homeless in 2009 range from between 1.6 million and 3.5 million (National Coalition for the Homeless 2009) – i.e. between .5% and 1% of the total population. The total poverty rate, as of 2010, in the US is 15.1% (approximately 45,000,000 people), which is the *highest* rate since 1993 (National Poverty Center 2012). The percentage of poor that is absolutely poor ranges from 4% to 8%. Similarly, 5.6 million *households* utilized a food bank more than once in 2010 (Feeding America). But, as can be seen from these statistics, relative poverty, as is likely true of other affluent nations, is the vast majority of poverty in the US.

2. The Meaning of 'Digital Divide'

The term 'digital divide' is comparatively recent vintage. At the most abstract level, the term refers to a gap between the information haves of the world and the information have-nots of the world. But this fundamental problem can be identified from a number of different conceptual angles. It can be seen, for example, from a global context (digital information inequalities between nations); from a national context (digital information inequalities within a state); or even from more local contexts (such inequalities between tribes, etc.). The list of markers to measure the digital divide is long and include many known factors indicating other forms of discrimination: age, gender, economic and social status, education, ethnicity, type of household (urban/rural) and so on.

The fundamental problem can be seen, more specifically, in terms of an inequality with respect to a gap in *meaningful* access to information and communication technologies (ICTs), which requires not only the availability of the technology but also the ability to use it to economic and cultural advantage. On this conception, someone with the relevant ICTs who can do no more with them than download music has access to ICTs. But she does not have *meaningful* access to those ICTs because she does not have the ability, opportunity, or disposition to use them in a way that promotes her cultural knowledge or economic wellbeing. In addition, someone who can find information that can ground economically productive activity, but lacks the ability (perhaps because of underdeveloped analytic skills) or opportunity to put it to use would suffer from an information gap relative to someone who is succeeding in the "information" or "knowledge" society. Although there are many complex distinctive problems, they all fall under the rubric of the digital divide.

3. Bi-Directional Relationship between Absolute Poverty and the Digital and Information Divides

There are gaps in access to ICTs within nations and between nations. Within the US, for example, there are gaps between rich and poor citizens, as well as whites and blacks. In 2010, 57% of individuals earning less than \$30,000, 80% of individuals earning \$30,000 - \$49,999, 86% of individuals earning \$50,000 - \$74,999, and 95% of individuals earning \$75,000 and more used the internet (Pew 2010). 68% of whites and 49% of blacks have broadband internet access at home (CNN 2010).

Similar gaps exist between the affluent developed world and the impoverished developing world. Although Internet access is increasing across the world, it is still the case that a comparatively small percentage of the developing world's poor has internet access. Studies indicate that about 33% of the world's population has internet access but people in the affluent world have disproportionate access; 78% of people in North America and 61% in Europe have internet access but only 13% of Africans do (Internet Usage Statistics 2011).

One would think there is a causal relation between the digital divide and the gap between rich and poor. Obviously, people who are too poor to fully meet their immediate survival needs cannot afford either ICT access or the training that prepares one to take advantage of such access. But not being able to afford such training and access is likely to perpetuate poverty in a global economy increasingly requiring the ability to access, process, and evaluate information. Lack of access owing to poverty is a vicious circle that helps to ensure continuing poverty.

4. The Moral Dimensions of the Information and Digital Divides

Most theorists focus on the benefits of bridging the digital gap. Having meaningful access to ICT, which includes the skills to be able to process information in a way that creates marketable value, results in benefits that are economic and non-economic in character.

But there are potential downsides to ameliorating the digital divide. The worldwide availability of mass media featuring content from all over the world can have the effect of reducing cultural diversity that, as a moral matter, should be preserved. Many persons share the intuition that the progressive Americanization of western and eastern cultures (in the form, of a proliferation of American corporate franchises, like McDonald's and Starbucks, in an increasing number of international cities) has a clear moral downside. Likewise, since 75% of the Web's content is in English and less than 50% of the world are native English speakers, the continuing increase in the percentage of Web content that is in English will force people to become more fluent in English, ignoring their own native languages. Resolving the fundamental problem of the digital divide might threaten as many as 6,000 languages currently being spoken, the majority of which are in Africa.

But it is as important to avoid a cultural paternalism that attempts to insulate existing indigenous cultures from outside influences as it is to avoid the sort of cultural imperialization of which the U.S. is often accused – especially in cultures in which life-threatening poverty is endemic. There are not always easy choices here with respect to the kind of gaps with which we are concerned. But it is fair to assume that, while the value of preserving culture is an important moral value, the values associated with making possible a more economically affluent life for the 1 billion people who live on less than \$1.00 a day and the nearly 3 billion who live on less than \$2.00 a day outweigh the admittedly important moral value of preserving diversity. A full stomach is more important than cultural integrity.

5. Do the Affluent have a Moral Obligation to Help Overcome Poverty and the Information and Digital Divides?

It is largely uncontroversial that it is *morally good* for affluent persons or nations to help impoverished persons or nations, but there is disagreement about whether affluent persons and nations are *morally obligated* to alleviate the effects of absolute poverty. Many persons believe that the only moral obligations we have are *negative* in the sense that they require people only to abstain from certain acts; we are obligated, for example, to refrain from killing, stealing, lying, and so on. On this view, we have no moral obligations that are *positive* in the sense that they require us to improve people's lives or the state of the world in some way. It follows, on this view, that we have no moral obligation to help the poor; helping the poor is good, but beyond the demands of obligation.

We argue below that this view is inconsistent with the ethics of every classically theistic Western religion, ordinary intuitions about certain cases, and each of the two main approaches to normative ethical theory, consequentialism and deontological ethical theory. Taken together, these arguments make a compelling case for thinking the affluent are morally obligated to help alleviate absolute poverty wherever it is found.

A. *Theological Considerations*

It is clear that Christian ethics entail a robust moral obligation to help the poor. There are 3000 references in the Bible to alleviating poverty. Jesus frequently speaks of helping the poor as a *constituent* of authentic religious faith in God. In Matthew 25:31-49 ("Parable of Sheep and Goats"), Jesus explains what qualities separate those who are saved from those who are not, and what matters is how one acts and not what one believes. Jesus identifies his interests, in this parable, with those of all people in need; as he explains, the ultimate fate of saved and condemned are determined by how they treat those in need: "And the king will answer them, 'Truly I tell you, just as you did it to one of the least of these who are members of my family, you did it to me'" (Matthew 25:40).

The implicit conception of authentic faith here is that it is not just about believing certain propositions; it is also about doing things – and one of those things is to help the poor. Not helping others in need is tantamount to rejecting Jesus. Since (1) this is justifiably punished and (2) punishment is justified only for failures to do what is obligatory, it follows that helping others is morally obligatory.

In Judaism, *Tzedakah* includes an obligation to help the poor. Leviticus 19:18 states the law: "You shall not take vengeance or bear a grudge against any of your people, but you shall love your neighbour as yourself: I am the Lord." Leviticus 23:22 puts the point in terms of agricultural products: "And when you reap the harvest of your land, you shall not reap all the way to the edges of your field, or gather the gleanings of your harvest; you shall leave them for the poor and the stranger." As Rabbi Maurice Lamm sums up the Jewish view: "Support for the disadvantaged in Judaism is not altruism. It is "justice." And to do justice,

of course, is obligatory; in the case of Judaism, it is necessary to save the Jew from a “meaningless death.” As such, it is a commandment and an obligation.

Finally, Islam regards the obligation to help the poor (*Zakat*) as one of the five basic obligations (or “pillars,” as these obligations are commonly called) of its faith. These pillars obligate Muslims (1) to declare that there is no God but Allah and Muhammad is the Messenger of God (*Shahada*); (2) to worship in prayer five times daily while facing Mecca (*Salat*); (3) to fast from sunrise to sunset during the holy month of Ramadan (*Sawm*); (4) to make a pilgrimage to Mecca (*Hajj*); and (5) to give to the poor and needy (*Zakat*). Once a tax collected by the government, satisfaction of the obligation to help the poor is now often left to the conscience of the believer.

B. *Intuitions: Peter Singer’s Drowning Infant Case*

Peter Singer asks us to consider the following situation. An adult notices an infant face down at the edge of a nearby pond in some very shallow water and can see the infant is flailing. Instead of simply bending over and removing the infant from the water, a gesture that would cost no more than a few seconds and some wet hands, he walks by without doing anything and allows the infant to drown. People almost universally react to this case with a judgment that the adult has done something grievously wrong, which is inconsistent, of course, with the view that the only moral obligations we have are negative.

This case suggests we all hold the view that *individuals* have a moral obligation to save the life of an innocent person if we can do so without incurring a significant cost to ourselves. This is strong enough to entail a robust obligation on the part of the affluent to alleviate the life-threatening conditions of absolute poverty. Sacrificing a \$30 shirt one does not need in order to save the life of a desperately malnourished child for one month is a trivial cost for someone who makes \$50,000 per year, about the average income in the U.S. (US Census 2012).

Is the situation any different for *states* than for individuals? As noted above, this is a complicated issue but this much appears true: we appear, as a society, to accept that this principle applies at least in some instances to the US government: most people believe, for example, that the US is sometimes obligated to intervene to prevent genocide – which comes at the expense of the lives of US soldiers and the costs of using our military. This surely harmonizes with (although it does not logically imply) the principle extracted from the Singer case: an affluent state has a moral obligation to save innocent people if it can do so without incurring significant costs (either to itself or to taxpayers).

It is not clear that US foreign aid expenditures satisfy even this modest principle. A national commitment of even \$100 billion per year to foreign aid is insignificant in an economy worth \$12 trillion dollars. Indeed, \$100 billion is about 2.6% of the \$3.8 trillion federal budget approved in 2011 (National Data Book 2012). However, In 2011, the U.S. spent about \$28 billion in foreign aid for

humanitarian purposes (National Data Book 2012), about 0.74% of the total budget and 0.19% of a GDP of \$14.5 trillion.

Foreign humanitarian expenditures seem to be a morally insignificant percentage of the GDP and federal budget but it also seems to be a morally insignificant figure relative to population – at least for reasonably affluent people. \$28 billion spread over 314 million people is approximately \$89 per person. For someone earning the average income of \$50,000, \$89 is 0.18% of her income. Federal expenditures reducing national poverty are significant on any reasonable definitions of ‘significant,’ but those reducing foreign poverty do not.

C. Alleviating Life-Threatening Effects of Bad Luck

It might be tempting to think that merit largely determines how material resources are distributed in the world. We are affluent and they are not, on this line of thinking, because we have earned it and they have not. While poverty is always regrettable, it does not necessarily involve justice: as long as people have gotten everything they deserve, there is no injustice in their having less than they need. We are our own keepers, and our respective merits determine what distributions are just. In other words, we have what we have because we have earned and hence deserve it.

While desert plays a role in explaining why people have what they have, luck also is a large factor. Had, for example, Bill Gates’s parents lived in conditions of absolute poverty in a developing nation instead of an affluent suburb of Seattle, he would not be living anything like the kind of life he lives. He would surely not be one of the world’s richest men or the former head of Microsoft because he would not have had access to the resources available in an affluent nation like the U.S., including an education that made it possible for him to achieve the level of digital and business sophistication needed to start a successful corporation. Indeed, the probability that Gates would not also be mired in conditions of absolute poverty is extremely low.

Further, Gates also benefitted greatly from having been born (1) with certain native intellectual abilities (2) into a world that had reached a level of technological advancement that made Microsoft a technological possibility (3) to loving skilled parents who knew how to raise him well. Had Gates been born to parents who were neglectful and abusive or had he been born with average native abilities, he would not have enjoyed the success he has enjoyed. Obviously, Gates did not have a choice in any of these matters; as far as these factors were concerned, Gates got very lucky where others did not.

The same is true of anyone who lives in the affluent developed world. Most of us who enjoy affluence in these nations have done something to deserve it, but we also owe what we have to not having had the misfortune of being born to parents living in conditions of life-threatening poverty who lack access to the basic resources affluent persons take for granted: adequate nutrition, water and

shelter, as well as 12 years of free education and government funding available for a university education.

There is, of course, nothing morally wrong with being lucky *per se*. What we luck into is, by definition, beyond our control and hence not subject to moral evaluation. Nor is it necessarily wrong to keep what you have lucked into. If, for example, my neighbors and I contribute a modest amount to fund a lottery game we will all play, it seems reasonable to think that, other things being equal, there is no injustice with the winner's keeping the prize – even though the result of the game is determined by luck and no one can antecedently claim to deserve the winnings.

But when a person cannot opt out of a game of chance and the results of that game largely determine whether she will have *much* more than she needs to survive or whether she will instead struggle (and sometimes fail) to survive, those who have the good fortune to draw birth in the affluent world owe an obligation of justice to those who have the misfortune to draw birth in conditions of absolute and hence life-threatening poverty. That is, we have an obligation to share the bounty of our good luck with those whose luck was bad. Here, again, it seems reasonable to think that the obligation applies to both individuals and states (but it is important to keep in mind the distinction between the two).

D. Consequentialism and Deontological Moral Theories

There are two main species of normative ethical theory that evaluate acts rather than character: consequentialism and deontology. Consequentialism is the view that the moral value of any action is entirely determined by its consequences; for example, act utilitarianism holds that the first principle of ethics is the obligation to maximize “utility,” which may be defined in terms of pleasure, well-being, happiness, or satisfied preferences (Mill 1879). Strictly speaking, deontology can be accurately described as the negation of consequentialism: the moral value of at least one act is partly determined by features intrinsic to the act, rather than the consequences of the act. For example, an act utilitarian would have to explain the wrongness of lying in terms of features extrinsic to the lie (namely, the effects of the lie on total utility), whereas a deontologist can explain the wrongness in lying in terms of its inherent features (namely, its deceptive character).

While there are different consequentialist theories and different deontological theories, a brief consideration of two of the most historically influential will suffice to show these different theories generally converge on the view that we have a moral obligation to help the poor. Consider act utilitarianism's claim that our sole obligation is to maximize utility. Here it is important to note that material resources have diminishing marginal utility once basic needs are satisfied. Once basic needs are met, each successive increment of disposable income has less value to us than the last increment of the same

amount. For example, a person making \$45,000 per year, other things being equal, will derive less utility from a \$5,000 raise than someone making \$30,000 per year. If this is correct, then utility will generally be maximized by moving it from people who have more than they need to people who have less than they need.

Some act-utilitarian theorists argue that we are obligated to distribute material resources so everyone has an equal share; if you have \$50,000 and I have \$40,000, the utility of an additional \$5,000 to me exceeds the utility of the \$5,000 you have over \$50,000. Accordingly, to satisfy your obligation to maximize utility, you should give me \$5,000, which would equalize our share of the resources.

Not all act utilitarians are egalitarians. Many would argue that, notwithstanding the diminishing marginal utility of non-necessities, an equal distribution of income would ultimately reduce utility by eliminating the incentive for work that increases the community's material resources. But, one way or another, the diminishing marginal utility of non-basic material resources pretty clearly implies, on an act utilitarian view, an obligation to move disposable income to persons who lack the basic necessities.

Deontological theories almost universally hold that we have an obligation to help the poor. Consider Immanuel Kant's view that the first principle of ethics, the Categorical Imperative – to act on only those principles that we can consistently universalize as a law governing everyone's behavior— entails an obligation to help the poor:

A fourth, who is in prosperity, while he sees that others have to contend with great wretchedness and that he could help them, thinks: "What concern is it of mine? Let everyone be as happy as Heaven pleases, or as he can make himself; I will take nothing from him nor even envy him, only I do not wish to contribute anything to his welfare or to his assistance in distress!" Now no doubt if such a mode of thinking were a universal law, the human race might very well subsist.... But although it is possible that a universal law of nature might exist in accordance with that maxim, it is impossible to will that such a principle should have the universal validity of a law of nature. For a will which resolved this would contradict itself, inasmuch as many cases might occur in which one would have need of the love and sympathy of others, and in which, by such a law of nature, sprung from his own will, he would deprive himself of all hope of the aid he desires (Kant 1765).

Another influential deontological theorist, W.D. Ross, took the position that we have a number of *prima facie* duties that, taken together, determine what we are obligated to do on any given occasion. A duty is *prima facie* in the sense that

it is presumptive and can be overridden by a stronger *prima facie* duty; what we are ultimately obligated to do is determined by the strongest of these presumptive (*prima facie*) duties.

Ross gives what he takes to be a complete list of *prima facie* duties: (1) Those resting (1) on a promise; (2) on a previous wrongful act; (3) on previous acts of other persons (e.g., services that may give rise to a duty of gratitude); (4) on a distribution of pleasure or happiness; (5) on persons whose conditions we can make better (duties of beneficence); (6) on the ability to improve our own conditions (duties of self-improvement); (7) on the harmfulness of certain behaviors on others (duties not to harm others) (Ross 1930). Proposition (5), of course, describes a *prima facie* obligation to help the poor. Consequentialist and deontological theories typically (though not necessarily) agree that the affluent have a moral obligation to help the absolutely poor.

Secular and theological ethical traditions converge on the view that there is an obligation for affluent people to help those in absolute poverty, particularly when the cost of their doing so is very low.

6. **Empirical Skepticism about the Relationship between Digital Divides and Absolute Poverty**

It has been almost universally assumed that addressing the digital divide would effectively reduce absolute poverty, producing benefits that far outweigh the costs – especially in the form of eliminating poverty. The network had to expand by all means and at any cost: access to unlimited digital information meant unlimited financial opportunities, entertainment, personal growth, unlocked working potential, even spirituality, easing the path towards democracy and freedom of speech for so many countries.

These expectations were so high it became inevitable that people would become skeptical about the prospects of solving the problem of absolute poverty by bridging the digital divide. To adjudicate disagreements about the potential for closing the digital divide to reduce absolute poverty we need evidence from studies examining attempts to do so.

Here are some results from US studies. Singleton and Ross (2000) deny that new information technologies in the classroom necessarily reduce the number of students who lack basic skills when they leave school, one of the most reliable determinants of individual income and wealth levels. First, students can (and have for many years) achieved a high level of academic achievement and later on financial achievement without the use of digital technologies. Second, exposure to unlimited technological resources might not lead to any significant skill development at all:

One prime example is the Kansas City School System. Under court

order, the Kansas City School Board was told to design a “money is no object” program to integrate the school system and to raise the test scores of African-American students. The board added, among other new facilities, computers everywhere, television sets and compact-disc players, television studios, and a robotics lab, and it boasted a student-teacher ratio of 12 or 13 to 1. But the test scores of the minority students did not rise. The board ultimately concluded that paying more attention to hiring good teachers and firing bad ones would have made a greater difference.

Another study is indicative of failures in the attempts to bridge the digital divide. In 2000, LaGrange, Georgia became the first city in the world to implement ‘The Free Internet Initiative’, a municipal program offering broadband access to the internet for every citizen (Keil 2003). Internet access was provided through a digital cable set-top box that was distributed free of charge and every citizen could also receive free training. The project did little to better the economic prospects of people in lower income groups.

Although these studies might cast doubt on the relationship between poverty and technology, they show only that digital and information inequalities cannot be resolved *overnight*; indeed, a study like this can tell us little, if anything, that would challenge the connection between information inequalities and economic inequalities. The problems that cause absolute poverty in the global south and relative poverty in affluent nations are much too complex to be solved by a one-time, short-term investment of information capital. Attitudes may have to be changed, while educational systems will have also to be improved. But, even in the long-term, there are many contingent cultural difficulties – at least in the US and presumably in other countries with a history of institutionalized systemic racism – that will have to be overcome. Solving the problems associated with the digital divide is, not surprisingly, a long-term commitment.

Still, it is clear that not all poverty, relative or otherwise, can be explained by lack of access to the relevant technologies. One study dealing with information poverty and homeless people in the US concluded that homeless people may lack needed financial resources but this did not translate to a lack of access to their more frequently articulated information needs (mainly: how to find permanent housing; how to help children; how to find a job; how to deal with finances; how to cope with substance abuse and domestic violence). Homeless people found information mostly by person-to-person contact.

This is of somewhat more relevance in assessing the relationship between bridging the digital divide and reducing absolute poverty. However, the context is too specific to tell us much about the more general connections between the two. The population is a subclass of the absolutely poor but one with idiosyncratic qualities – the homeless in the US. Different people have needs for different

content: you cannot take a homeless person and turn her into a stockbroker simply by providing her with the information a stockbroker has.

There are many reasons for this. One is that many US homeless people suffer from serious mental health disorders and substance abuse problems. Another, it is impossible to lawfully get a job without an address in the US. But, again, this tells us no more than that the problems comprising the digital divide and its relation to poverty are enormously complex and require a long-term, multi-faceted approach to solving.

There are studies calling attention to different obstacles faced in bridging the global digital divide as a means of addressing poverty. In Costa Rica, for example, the Little Intelligence Communities project (LINCOS), founded by MIT, Microsoft, Alcatel and the Costa Rican government, aimed at helping poor rural Costa Rican communities through telecenters failed. It was not the poor, but the rich coffee farmers who tried to take advantage of the project; local residents either did not care at all, or were mostly interested in using the technology in ways that did not material improve their situation—e.g. viewing virtual pornography. This study shows that efforts to bridge the digital divide will not succeed unless people are properly educated about what these technologies can accomplish economically – and must also want to produce those various results.

Some problems are simply technological in character and require more time to resolve. In Greece, a very expensive software program funded by the European Community, a telemedicine program aimed at connecting sick people and their primary care doctors with the most specialized physicians in the biggest Athens hospital for trauma (KAT), failed in its entirety when the physicians realized that all their orders, based upon digitally sent exam results, scans, etc. from the remote islands, would be stored and that the question of medical liability was not resolved. The attempt to use telemedicine to close the digital gap between people in remote islands (who do not have access to digital medical diagnostic technology) and people in the center (who do), in this case, was a total failure. It seems that the money would have been better spent by funding the salaries of specialized physicians who would work at these remote islands and by financing some medical equipment there.

To conclude, these studies, even taken together, are inconclusive. They do not justify a robust digital skepticism. All technologies that resolve morally important problems take time to develop. While it is widely believed that gene therapy will make possible cures for diseases that are currently incurable, the research has progressed very slowly. The same should be expected of ICTs and related measures intended to alleviate the conditions of poverty. There is simply nothing one can do to make the economic injustices of the world disappear tomorrow.

7. **Conclusion: Towards Solving the Problems of the Digital Divide and Absolute Poverty**

A few closing observations about solving poverty and the digital divide are worth making. First, and most obviously, you cannot eat ICTs, Internet access, or information; if we are dealing with countries with life-threatening poverty, then the very first step in providing meaningful access to ICTs is to ensure that these more basic needs are met. Someone who is malnourished and sick will not be in a position to take advantage of ICTs no matter what else is done. So part of the program must include provision of foodstuffs, clean water, and healthcare to ensure basic needs are met.

Second, other kinds of physical infrastructure are needed in developing nations to ensure that people have access to the opportunity to participate in the online economy. The affluent have no problem ordering goods from Amazon.com because they have homes with road access making it possible for UPS or Fed-Ex to deliver those goods. In many places in Africa, for example, people live away from roadways and must walk long distances to school and work, and they cannot get UPS and Fed-Ex service there. Further, impoverished people in the developing world do not have the credit cards needed to use such services.

Third, and most importantly, people must not only have the relevant ICTs, but also the ability to utilize these ICTs to produce output that is ultimately marketable in a global economy. People once thought that having access to radio technology would improve the economic lot of poor persons in the developing world; evidence now suggests there are more radios in South Africa than mattresses, but unemployment is at more than 30%. People must be taught to extract marketable knowledge from relevant information. Internet access does no good in alleviating poverty if all that is done with it is to download films or music.

What is needed is a particular type of skills – the type that enables a person to use ICTs and information to produce output that is in demand, or to be able to identify, find and use information that is beneficial to them. Only where impoverished persons are in a position to produce something other people want to buy can they raise their standards of living. Obviously, these skills include programming, designing websites, and so on; less obviously, they require at this point in time training in English, which is increasingly becoming the world's language of commerce – although it would clearly be ideal to make efforts to ensure the easy availability of devices that accurately translate the contents of a website in one language into any other of the world's written languages.

But training means nothing if the resulting skills do not elicit a fair wage. To improve the lot of poor countries, affluent countries must provide *fair*, competitive opportunities for a person to take advantage of her skills. While more

and more people are getting such opportunities through corporate outsourcing, they do not receive a fair wage – though what they receive is more than what they could otherwise earn.

What the foregoing discussion shows is that the addressing the digital divide will not itself eliminate, or even very greatly reduce, global poverty. However, it needs to be a component of any comprehensive effort to address it. As the global information economy continues to develop, meaningful access to ICTs is necessary to enable people, communities and nations to achieve significant economic progress.

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