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DEVELOPMENT THEORY AND FOUNDATIONS OF UNIVERSAL ACCESS POLICIES*

Abstract

This essay discusses the justifications to implement public policies towards widespread access to information and communications technologies (ICTs) in the context of developing countries. It argues that the so-called universal access policies can be seen as important pieces of broader development strategies. In this sense, there is a strong case for governments of developing countries to foster access to ICTs. The work is structured in three parts. Part I examines the theoretical arguments and empirical evidence supporting the positive impact of access to ICTs on economic growth. Part II discusses the impact of access to ICTs on the improvement of human functionings and expansion of human capabilities. Finally, Part III addresses the impact of universal access policies on the reduction of inequality, relating this effect to sustainable development. A brief conclusion ties the three parts together.

When examining specific public policies in developing countries, it is important to keep in mind the broader picture of the development process. In these countries, policies implemented on a micro-level – i.e., applied to specific sectors of the economy¹ – are usually in a context where the ultimate challenge of governments is to lead their countries to the path of sustainable development.² This article claims that universal access policies applied to the telecommunications sector³ can play an important role in the development process.

* This article was part of the dissertation entitled “Universal Access to Telecommunications in Developing Countries: The Brazilian Case”, submitted in partial fulfillment of the requirements for the degree of Doctor of the Science of Law (J.S.D.) at Yale Law School.

¹ The contrast here is with policies implemented on a macro level, such as interest rate, exchange rate and fiscal policies.

² The justification of public policies in developing countries according to their connection with the development process is a common argument. In fact, both in the national and international arenas, much of the discussion about public policy in the underdeveloped world tends to be centered on this justification. Underlying this debate is the argument that scarce public resources in developing countries should not be dissipated in public policies that do not contribute to the overall goal of development, understood in the broad sense of raising standards of living. I acknowledge, however, that public policies may be grounded on other justifications on a macro level, which may be completely independent of considerations of its impact on development. For instance, in a religious state, public resources may be allocated to build new temples and provide religious education regardless of the impact of these actions on any particular conception of development as raising standards of living. However, the fact that there might be other justifications for public policies does not diminish the relevance of understanding whether a given policy fosters, hinders or produces no impact in the development process. This remains a central point in the policy debate.

³ For the sake of simplicity, in the context of this work, whenever I use the expressions “universal service policy” or “universal access policy”, I am always referring to policies promoting widespread access of information and communications technologies (ICTs). I am not referring here to analogous policies applied to other sectors of the economy.

Framing micro-level public policies in the context of development strategies is not an easy task. It juxtaposes the difficulties of discussing the public policy itself and the difficulties of understanding the development process. One major obstacle in the pursuit of this task is the current stage of development theory. Even though much work has been done, there is surprisingly little agreement about the elements that lead to development in some countries and underdevelopment in others. However, the academic efforts in this field were not in vain. On the contrary, they have provided some plausible theoretical frameworks to look at the development process. My analysis will go through the two most important frameworks available in an effort to identify how telecommunications policy in general, and universal access policies in particular, may contribute to development strategies.

As I shall argue, public policies towards widespread access to information and communications technologies (ICTs) can impact the development process on three levels: (i) they tend to have a positive effect on economic growth; (ii) they contribute to expanding human freedoms (i.e. functionings and capabilities) and (iii) they contribute to reducing inequality.

I will proceed in the following manner. Part I will examine the theoretical arguments and empirical evidence supporting the positive impact of access to ICTs on economic growth. This part will draw from a wide array of development frameworks that focus on economic growth as the single most important element of the development process – I will label these frameworks *mainstream development economics*. Part II will discuss the impact of access to ICTs on the improvement of human functionings and expansion of human capabilities. This part will draw from a body of literature heavily influenced by the theoretical work of Amartya Sen and the policy work of the United Nations Development

Program (UNDP) – this line of thought will be labeled *development as freedom*. Finally, Part III will focus on the impact of universal access policies on the reduction of inequality in developing countries. Here, I will refer to works within both paradigms of development that calls attention to the importance of minimum levels of equality to unleash the development process.

One important caveat must be made. Although the analysis in this article is framed in general terms, in attempting to identify the potential relationship between access policies and development, my main concern is with those countries in a middle level of development, with some degree of industrialization, sometimes also referred to as emerging countries (e.g., Brazil, Chile, Argentina, and Mexico). Although I believe part of the analysis would also apply to less developed countries (LDCs), it would certainly need many qualifications. Simply put, the starting point of universal access policies in countries like Brazil or Mexico is much different from the starting point in Sub-Saharan Africa. It would be naïve, to say the least, to treat both situations in the same manner.

I. UNIVERSAL ACCESS, EFFICIENCY AND MAINSTREAM DEVELOPMENT ECONOMICS: THE FOCUS ON ECONOMIC GROWTH

The basic question about why some countries are richer than others has tormented scholars and policymakers for a long time. In the modern era, the subject of economic development has attracted the attention of economists since the foundation of the discipline in 1776 with Adam Smith's *Inquiry into the Nature and Causes of the Wealth of Nations*.⁴

⁴ ADAM SMITH, *WEALTH OF NATIONS* (Prometheus Books 1991) (1776).

However, it was not until the end of World War II that economists started devoting significant effort to construct abstract models that could explain the process of economic development.⁵ The school of thought that emerged from this enterprise focused almost entirely on the investigation of the elements that would increase efficiency and lead to economic growth. The basic idea was that economic growth would expand wealth and gradually raise standards of living of the entire population of a given country. Therefore, if economists could identify and understand the elements that led to economic growth, they would be able to prescribe strategies to expand the wealth of less developed nations,⁶ reducing inequality among countries and eventually leading to the convergence of development levels of all nations.⁷

Considering this body of literature, which I generally label mainstream development economics,⁸ it is important to evaluate how telecommunications policies in general, and universal access policies in particular, may impact economic growth. This issue raises many important questions addressed in this part: Are there any good reasons to believe that government action to expand access to telecommunications networks would lead to

⁵ WILLIAM EASTERLY, *THE ELUSIVE QUEST FOR GROWTH: ECONOMISTS ADVENTURES AND MISADVENTURES IN THE TROPICS* xi (2001) (“Fifty years ago, in the aftermath of World War II, we economists began our own audacious quest: to discover the means by which poor countries could become rich like the rich countries in Europe and North America.”).

⁶ Ray puts it in the following terms: “We sense here the big payoff, the possibility of change with extraordinarily beneficial consequences, if one only knew the exact combination of circumstances that derives economic growth.” See DEBRAJ RAY, *DEVELOPMENT ECONOMICS* 47 (1998).

⁷ The hypothesis of convergence of development levels has generated much discussion in the economic literature. For a brief overview of this discussion, see CHARLES I. JONES, *INTRODUCTION TO ECONOMIC GROWTH* 56-64 (1998).

⁸ I acknowledge that I am including under a single label many different theories of economic development. To be sure, the investigation of economic growth has taken countless paths; and some of them point in different directions. However, all these different paths have in common the focus on economic growth as the important phenomenon to be understood in the context of development. In this sense, it is appropriate to treat them jointly. Moreover, the brief overview of this string of literature shows that there is some coherence in the evolution of these theories and identifies which part of this literature is most relevant for understanding the impact of telecommunications policy on growth.

economic growth? Does development economics support these reasons? What does the empirical evidence show in this regard?

Two quick notes before I continue. This is not an attempt to provide a thorough review of the literature on development economics. This literature is vast, and any attempt to make a comprehensive review would require a work of its own. My modest goal is to understand whether theories of economic growth support policies that promote access to ICTs. Second, I do not intend to discuss the deficiencies of growth theories in general. They are simply too numerous to fit into this inquiry.⁹ My concern is only with those specific deficiencies regarding the explanation of the relationship between telecommunications policies and economic growth.

A. BRIEF OVERVIEW OF THE EVOLUTION OF MAINSTREAM DEVELOPMENT ECONOMICS

After World War II, the quest for theoretical frameworks that could explain economic growth started with the so-called Harrod-Domar model, named after Roy Harrod¹⁰ and Evsey Domar.¹¹ This model identified investment as the key element that leads to economic growth.¹² The perception was that firms pay for wages and rents, as well as distribute profits to their shareholders. With the income individuals receive from wages, rents or profits, they can either consume goods and services or increase their savings. Savings can be channeled to investment in capital goods beyond the amount necessary to replace depreciated capital, thus expanding output and generating growth. Another way to boost growth in this framework

⁹ Easterly provides an acute criticism of the deficiencies of development economics. *See, generally*, EASTERLY, *supra* note 5 (with a suggestive title, Part II of the book analyzes the “panaceas that failed” in growth theories).

¹⁰ *See* F. Roy Harrod, *An Essay in Dynamic Theory*, 49 *ECONOMIC JOURNAL* 14 (1939).

¹¹ *See* Evsey D. Domar, *Capital Expansion, Rate of Growth, and Employment*, 14 *ECONOMETRICA* 127 (1946).

¹² RAY, *supra* note 6, at 52.

would be to increase the rate by which capital leads to more output (i.e., productivity). The model is quite simple and it has “the air of a recipe”: any country that could manage to expand savings and/or increase the capital-output ratio would find the path to growth.¹³ The Harrod-Domar model also attempted to quantify the impact on economic growth caused by increases in savings and/or increases in the capital-output ratio, so that one could state the relationship in the following terms: an increase of x percent in savings and y percent in the capital-output ratio will lead to growth of z percent. Many other scholars followed this line of thought, developing more elaborate approaches to explain how investment was central to economic growth.

However, it is hard to believe that such a simple model would solve the development problem. It is unlikely that just acquiring more machines (i.e., capital investment) will lead to long-term growth. If that was true, it would be simply too easy to put all developing countries on a path of sustainable growth. As the empirical evidence and more detailed theoretical frameworks eventually demonstrated, investment was no panacea.¹⁴ Nevertheless, the belief that investment is a key element to promote growth remains quite strong even today.

Shortly after Harrod and Domar, Robert Solow developed what became known as the neoclassical model of growth in a groundbreaking work that inaugurated the path that would lead him to the Nobel Prize years later.¹⁵ Solow’s model is based on the assumption of

¹³ RAY, *supra* note 6, at 55. *See, also*, Robert Solow, *Perspectives on Growth Theory*, 8 JOURNAL OF ECONOMIC PERSPECTIVES 45, 46 (1994) (“Such an economy could jack up its long-term rate of industrial growth merely by increasing its investment quota. Under the influence of this [Harrod-Domar] model, this policy was some times prescribed.”).

¹⁴ *See* EASTERLY, *supra* note 5, 28-44 (2000).

¹⁵ *See* Robert Solow, *A Contribution to the Theory of Economic Growth*, 70 QUARTERLY JOURNAL OF ECONOMICS 65 (1956) [hereinafter Solow, *Contribution*]. Solow further developed the neoclassical model in a famous follow up article in 1957, in which he identified technical change as the engine for long-term growth. *See* Robert Solow, *Technical Change and Aggregate Production Function*, 39 REVIEW OF ECONOMICS AND STATISTICS 312 (1957) [hereinafter Solow, *Technical Change*]. *See, also*, ROBERT SOLOW, GROWTH THEORY: AN EXPOSITION (1988) (originally published in 1970).

diminishing returns of factors of production. Because labor and capital are both needed to produce output, increases in capital will have diminishing returns as labor becomes more and more scarce relative to capital.¹⁶ According to Solow's model, there is an initial transitional period in which capital will have high returns. During this period there is an abundance of labor and introduction of machines would rapidly increase output. However, over time, returns to capital would diminish, leading to a reduction in the capital-output ratio and a consequent reduction in investment. As a result of the diminishing returns of production factors, the capital-labor ratio would tend to be constant in the long-run – reaching a so-called “steady-state” – with both total capital stock and population growing at the same pace. This conclusion meant two things. First, because of diminishing returns, investment in capital would not lead to long-term growth, as predicted in the Harrod-Domar model. Second, per capita income would stabilize in the long run, at the steady state, and sustainable economic growth would be impossible.

Since this last conclusion was not plausible, especially observing the long-term growth trend of developed countries, there should be some exogenous factor accounting for such growth in the long run. This exogenous factor was identified as technological progress. Technology could make the combination of production factors more effective, and therefore the same amount of labor and capital could increase output beyond the current levels. Technological progress was identified as the key source of long-term growth after reaching the steady-state level.¹⁷

When Solow developed his model, he had in mind industrialized countries. In fact, he was trying to explain economic growth in the United States, and he never applied the model

¹⁶ See JONES, *supra* note 7, at 21-22.

¹⁷ *Id.* at 32-33. See also Solow, *Technical Change*, *supra* note 15.

to developing countries.¹⁸ When the model was applied to the Third World, it ultimately led to conclusions similar to those reached by the Harrod-Domar model. Easterly describes how the application of Solow's model to developing countries led to this skewed result:

Here is how it [the Solow model] would work explaining cross-country differences. All countries are assumed to have access to the same technology and the same rate of technological progress. The thinking is that there is no reason that major technological breakthroughs that happen in one country cannot be implemented in other countries. (...) So we rule out differences in available technology. Then the only reason some countries are poorer than others is that they have started with very little machinery. Poor tropical countries will have higher returns to machines than will rich temperate countries.¹⁹

Therefore, the argument goes, investment in capital stock will ultimately lead to convergence of income levels and all countries will then grow at the pace of technological innovation. But this argument seems to turn Solow's model on its head, since its main insight was that investment by itself could not sustain long-run economic growth.²⁰ Besides, the empirical evidence does not confirm the predictions of these arguments. If returns of capital investment were substantially higher in developing countries, we should see much more

¹⁸ See Solow's original work. Solow, *Contribution*, *supra* note 15. Easterly points out that Solow never attempted to apply his model to developing countries ("He never mentioned tropical countries in any of his writings; in fact, he never applied his model to any other country besides the United States"). EASTERLY, *supra* note 5, at 55-56.

¹⁹ EASTERLY, *supra* note 5, at 56.

²⁰ *Id.* at 69 ("The imams of capital fundamentalism who applied the Solow model to the tropics turned this insight [of diminishing returns of capital] on its head").

investment in those countries than actually happens.²¹ Once again, predictions could not be reconciled with reality.

The difficulties created by Solow's predictions led some scholars to twist the model in order to introduce considerations about human capital.²² The basic idea was that investments do not take only the form of physical capital, but also take the form of human capital. Savings can be channeled to education and other activities directed to the improvement of labor skills, which has a direct impact on the aggregate output level of the economy. These models of human capital gave the first steps towards the introduction of endogenous variables to explain long-term growth (i.e., conscious decisions towards the improvement of human capital could be internalized in the economic models). However, whenever a fixed factor of production was introduced in the model, such as unskilled labor, we were back to Solow's analysis of diminishing returns (i.e. physical capital and human capital would have diminishing returns because of the fixed amount of unskilled labor).

The human capital model backed a series of efforts to expand education in developing countries. Nonetheless, with rare exceptions, the effects of education expansion on growth have been ambiguous. For instance, the past two decades have shown a significant increase in formal enrollment in school in Latin America and Africa, but growth rates have been close to zero.²³ Apparently, formal education by itself did not have significant impact. Or, perhaps, from a more optimistic perspective, the investment in human capital is simply not mature enough and the fruits will come in the future.

²¹ *Id.* at 58-64.

²² RAY, *supra* note 6, at 100-105.

²³ EASTERLY, *supra* note 5, at 73-78.

The neoclassical model, and its assumptions about diminishing returns of factors of production, remained as a shadow in the development debate. However, Solow's model created a big puzzle: it identified technological innovation as the engine of long-term economic growth, but it dealt with innovation as an exogenous variable. Solow did not explain how innovation itself took place, treating technology as a black box.²⁴ In fact, the model had thrown all factors that could possibly lead to long-term growth in a black box, since it only explained the transition from an early state of development to the "steady-state," and nothing beyond that. In other words, the neoclassical model could not explain how long-term growth could actually occur after a country reached a steady state.

It was time to open the black box. More complex models, capable of internalizing Solow's exogenous variables, were developed. This task was taken up by the "new growth theories", also called "endogenous growth theories."²⁵ Paul Romer, one of the founders of this school of thought, defines the general approach of these new models in the following terms:

The phrase "endogenous growth" embraces a diverse body of theoretical and empirical work that emerged in the 1980s. This work distinguishes itself from the neoclassical growth by emphasizing that economic growth is an endogenous outcome of an economic system, not the result of forces that impinge from outside. For this reason, the theoretical work does not invoke exogenous technological change to explain why income

²⁴ See RAY, *supra* note 6, at 107.

²⁵ The foundation of the new growth theories is identified with two works published by Paul Romer and Robert Lucas. See Paul M. Romer, *Increasing Returns and Long-Run Growth*, 94 JOURNAL OF POLITICAL ECONOMY 1002 (1986) and Robert Lucas, *On the Mechanics of Economic Development*, 22 JOURNAL OF MONETARY ECONOMICS 3 (1988).

per capita has increased by an order of magnitude since the industrial revolution. The empirical work does not settle for measuring growth accounting residual that grows at different rates in different countries. It tries instead to uncover the private and public sector choices that cause the rate of growth of the residual to vary across countries.²⁶

This line of thought is very ambitious, attempting to elucidate the complex relationships among “private and public sector choices” that lead to long-term growth.²⁷ This is certainly no easy job, but it also seems to be more realistic and potentially more fruitful than the prior endeavors. To be sure, some early attempts to develop endogenous growth models had taken place many years before.²⁸ But it was not until the mid-eighties that this field of research really took off. In little more than a decade and a half, the “new growth” scholars have generated an enormous body of literature, which seems helpful in analyzing the impact of telecommunications policy on long-term economic growth.

Grossman and Helpman point out that new growth theories were developed in three different clusters: (i) the first group of studies continues to regard capital accumulation, in the broad sense discussed above (i.e., including human capital), as the key to economic growth; (ii) the second cluster focuses on the importance of external economies and the spillovers from investment in certain types of capital; and (iii) the third group focuses on improvements

²⁶ Paul Romer, *The Origins of Endogenous Growth*, 8 JOURNAL OF ECONOMIC PERSPECTIVES 3, 3 (1994).

²⁷ Grossman and Helpman describe this attempt of the new growth theories in the following terms: “[t]hese observations have led the current generation of growth theorists to formulate models in which per capita income grows indefinitely and long-run performance reflects structural and policy parameters of the local and global economy.” See Gene M. Grossman & Elhanan Helpman, *Endogenous Innovation in the Theory of Growth*, 8 JOURNAL OF ECONOMIC PERSPECTIVES 23, 23 (1994).

²⁸ See, e.g., Kenneth Arrow, *The Economic Implications of Learning by Doing*, 29 REVIEW OF ECONOMIC STUDIES 155 (1962).

in technology.²⁹ As I shall examine, studies linking telecommunications policy and development usually fall in the second category, positing that investment in telecommunications generates significant spillovers to other sectors of the economy.

Finally, in the last quarter of the twentieth century, another perspective was added to the complex web of explanations about the process of economic growth: the perspective of institutional economics.³⁰ Although quite distinct from the other perspectives discussed above, this line of thought also considers economic growth the key element of development. However, in order to explain how economic growth is achieved and why certain economies perform better than others throughout time, this approach focuses on the role of institutions in facilitating economic transactions. Building on the foundation of Coase's seminal works,³¹ institutional economics suggests that the level of transaction costs is a key issue in the performance of economies.³² Moreover, it argues that institutions – composed by formal and informal constraints, as well as enforcement mechanisms – are essential elements to reduce transaction costs and put economies on the path to growth. This framework also recognizes that technology affects economic growth through the reduction of transaction and transformation costs.³³ As discussed below, some studies establish a causal link between access to ICTs and reduction of transaction costs, suggesting that expansion of access to these technologies has a positive impact on growth.

²⁹ Helpman & Grossman, *supra* note 27, at 23-24.

³⁰ Institutional economics is heavily influenced by the work of Douglass North. *See, generally*, DOUGLAS NORTH, INSTITUTIONS, INSTITUTIONAL CHANGE AND ECONOMIC PERFORMANCE (1990).

³¹ *See* Ronald Coase, *The Nature of the Firm*, 4 *ECONOMICA* 385 (1937) and *The Problem of Social Cost*, 3 *J. L. & ECON.* 1 (1960).

³² Wallis and North measured transaction costs in American economy, finding that about 45 percent of the national income was devoted to transacting. They also found that these costs grew over the past century. *See* John Wallis and Douglass North, *Measuring the Transaction Sector in the American Economy, 1870-1970*, in *LONG-TERM FACTORS IN AMERICAN ECONOMIC GROWTH* (S. L. Engerman & R. E. Gallman eds., 1986).

³³ *See* NORTH, *supra* note 30, at 61.

Given this rough map of mainstream development economics, I can now move on to a more specific analysis of the links between telecommunications policy, efficiency and economic growth.

B. TELECOMMUNICATIONS POLICY AND ECONOMIC GROWTH: THEORETICAL CONSIDERATIONS

Since the early stages of development economics, there were reasons to believe that investment in communications infrastructure would have a positive impact on growth. Indeed, according to the Harrod-Domar and neoclassical models, capital investment in infrastructure would probably generate positive returns, at least during the transition stage of the Solow model (i.e. until the economy reached the steady-state). Furthermore, with the development of more sophisticated models of economic growth, the interest in the potential positive impact of ICTs on efficiency and growth has increased. This interest was further boosted by rapid innovation in the information and communication sectors during the last quarter of the twentieth century.

The basic rationale underlying the hypothesis that expansion of access to ICTs generates a positive impact on growth is grounded on the perception that investment in telecommunications produces large spillovers (i.e. positive externalities) that improve efficiency in the economy. The spillovers resulting from the expansion of access to ICTs benefit the economy on three interrelated levels: (i) they generate many complementarities with investments in other sectors; (ii) they reduce transaction costs in the economy as a whole and (iii) they indirectly improve human capital and productivity. In addition, network

effects associated with communications infrastructures tend to enhance the positive economic effects on all three levels. I shall discuss each one of these effects below.

First, investment in telecommunications networks generates many complementarities. In the jargon of development economics, complementarity is a particular type of externality that arises when investment decisions of certain agents induce investment decisions of other agents.³⁴ The basic idea is that investment decisions are interlocked and each economic agent makes decisions about where and how to invest in light of prior investment decisions taken by other economic agents. In this sense, complementarities can lead to a virtuous circle of investment, inducing economic growth.³⁵

Because telecommunications networks present strong complementarities with almost all other economic sectors, it functions as a catalyst of economic growth.³⁶ These complementarities can be further specified as *forward* and *backward linkages* between investments in telecommunications networks and investments in other sectors of the

³⁴ In an early discussion of complementarity in the context of growth theory, Albert Hirschman referred to this concept as the “contagious effect” of investment on more investment. See ALBERT HIRSCHMAN, *THE STRATEGY OF ECONOMIC DEVELOPMENT* 41 (1958).

³⁵ Hirschman was so enthusiastic about the role of the complementarity effect on economic development that he argued:

The complementarity effect of investment is therefore the essential mechanism by which new energies are channeled toward the development process and through which the vicious circle that seems to confine it can be broken. To give maximum play to this effect must therefore be a primary objective of development policy.

Id., at 43. Hirschman probably overstated the impact of complementarities in the development process, but the concept remains an important element in contemporary development theory. For a recent discussion of the role of complementarities in the economic growth, see RAY, *supra* note 6, at 114-116.

³⁶ See Andrew P. Hardy, *The Role of Telephone in Economic Development*, 4 TELECOMMUNICATIONS POLICY 278, 280 (1980). To be sure, investments in other kinds of infrastructure, such as electric power and transportation, can also be considered catalysts. However, the empirical data discussed below suggests that communications infrastructures tend to present more significant spillovers to other sectors of the economy. This may be a result of the increasing importance of information in the contemporary context, as well as the impact of ICTs in the reduction of transaction costs.

economy.³⁷ On one side, *backward linkages* refer to demand-driven increases in the provision of inputs for communications industries. That is to say, the expansion of telecommunications networks increases the demand for a variety of equipment – e.g. cables, switches, routers, telephones, computers etc. – and the goods related to their production.³⁸ The increase in demand expands the domestic market for these goods, stimulating the emergence (or expansion) of industries that manufacture them. On the other side, *forward linkages* refer to the positive impact of telecommunications networks on economic sectors that use communications services as inputs to their activities. The forward linkages of telecommunications networks are ubiquitous, since most economic activities nowadays rely on communications services. Thus, availability of ICTs fosters investment in a wide range of activities – including agriculture, industry and services – that might not take place otherwise.

This effect is especially important in the so-called information sector, where communications services are one of the most important inputs, together with human capital. Forward linkages with investments in communications infrastructure seem to be strong and decisive for this sector to flourish. That is to say, the absence of access to ICTs may substantially hinder the development of information-related economic activities. Moreover,

³⁷ The concept of *linkages* was proposed by Albert Hirschman. See HIRSCHMAN, *supra* note 34, at 98-104. Hirschman uses the concept to describe the interconnections between investment decisions regarding different Direct Productive Activities (DPA). He does not apply the concept to infrastructure investment, which he calls Social Overhead Capital (SOC). However, there is nothing inherent to the concept of *linkage* that would preclude its application in the analysis of complementarities between infrastructure sectors and other sectors of the economy.

³⁸ See Lars-Hendrick Röller and Leonard Waverman, *Telecommunications Infrastructure and Economic Development: A Simultaneous Approach*, 2 (1996), Discussion Paper, Social Science Research Center of Berlin, at <http://skylla.wz-berlin.de/pdf/1996/iv96-16.pdf>.

the level of access to communications networks affects the modes of production of information, opening space for new forms of organization that could not emerge otherwise.³⁹

On a second level, expanding access to ICTs contributes to economic performance through the reduction of transaction costs. Indeed, access to these technologies makes the exchange of information over space and time significantly easier. This particular feature of ICTs tends to produce many positive effects on economic performance:⁴⁰ (i) lower communication costs reduce the cost of allocation decisions between rural and urban sectors of the economy (e.g. decisions about how much a farmer should produce); (ii) with lower communication costs, it is rational for economic agents to gather more intelligence about their possible choices, contributing to better decisions; (iii) lower communication costs facilitate intraorganizational flows of information contributing to increased productivity; (iv) lower communication costs allow managers to obtain information in a timely fashion, avoiding decisions based on obsolete information; and (v) lower communication costs increase knowledge about the probability of price levels, allowing for better evaluation of risk.

Acknowledging many of these positive effects of ICTs, Norton argues that ICTs reduce transaction costs in basically two ways.⁴¹ On one hand, by making information markets more efficient, access to ICTs reduces the cost of acquiring information in order to engage in transactions. On the other hand, access to telecommunications is important to the

³⁹ For a discussion of the emergence of peer collaboration as an efficient alternative mode of production in the information sector, see Yochai Benkler, *Coase's Penguin, or Linux and the Nature of the Firm*, 112 YALE L.J. 369 (2002).

⁴⁰ Nathaniel Leff, *Externalities, Information Costs, and Social Benefit-Cost Analysis for Economic Development: An Example from Telecommunications*, 32 ECONOMIC DEVELOPMENT AND CULTURAL CHANGE 255, 256-260 (1984). Note that this study was published well before the Internet and other advanced ICTs were available. Presumably, with technological innovation, the positive effects identified by Leff have increased since then.

⁴¹ Seth W. Norton, *Transaction Costs, Telecommunications and the Microeconomics of Macroeconomic Growth*, 41 ECONOMIC DEVELOPMENT AND CULTURAL CHANGE 175, 177 (1992).

functioning of product and factor markets, facilitating coordination and leading to more aggregate output in these markets.⁴² These positive effects are particularly relevant in developing countries, where economies suffer from a general lack of information and transparency.⁴³ In this context, rapidly expanding access to ICTs may lead to substantial improvement in economic performance and expansion of aggregate output.

In addition, the reduction of transaction costs may also have a positive effect on economic growth by fostering changes in institutions.⁴⁴ In fact, many institutional arrangements are developed to deal with the high and pervasive transaction costs in these countries. A significant reduction in these costs may change the underlying basis for the existence of institutions, creating incentives to replace them with more efficient ones. As one study puts it:

In this respect, ICTs may provide the impetus for institutional change in two ways. First, the reduction in transaction costs associated with the spread of ICTs may provide the exogenous forces required to create an institutional disequilibrium. This disequilibrium (from the demand or the supply side) could render an existing institutional arrangement less efficient than

⁴² Telecommunications improves coordination between different actors in the productive system. For instance, through access to telecommunications networks, a manager can be in touch with many different plants and suppliers, receiving information and ordering supplies much more efficiently. *See, e.g.*, Hardy, *supra* note 36, at 279. (“The impact of the telephone on managerial communication can be seen at a more aggregate level by an increase in coordination of the economic activity”).

⁴³ *Id.* at 257.

⁴⁴ Institutions in this context are taken in a very broad sense, referring to behavioral rules that structure interactions among individuals.

others in the choice set and provide the impetus required for institutional change.⁴⁵

On a third level, the expansion of access to ICTs may have indirect spillover effects on the expansion of human capital.⁴⁶ In fact, ICTs serve as the pathways to the exchange of information, facilitating the distribution of knowledge in society. Moreover, access to communications networks has many synergies with education and health policies, contributing to the role of these policies in the improvement of human capital. Therefore, expansion of communications networks is important in the struggle for economic growth not only because of the impact on capital investment and transaction costs, but also because it contributes to improve human skills.

Finally, on the top of all these spillovers to other economic sectors (i.e. backward linkages, forward linkages, reduction of transaction costs and improvement of human capital), ICTs present another particularly important type of spillover: network effects. At a micro-level, network externalities produce a positive feedback in demand that enhances the social value of the network. However, there is a more subtle consequence of network externalities at a macro level: enhancing the social value of the network has a multiplier effect on all spillovers mentioned above. In other words, network effects tend to boost other positive externalities generated by telecommunications networks. Because of this multiplier effect created by network externalities, spillovers from telecommunications networks to other

⁴⁵ Arjun S. Bedi, *The Role of Information and Communication Technologies in Economic Development: A Partial Survey* 11, Discussion Papers on Development Policy, Number 7, Center for Development Research, Universität Bonn (1999) [hereinafter Bedi, *The Role of ICTs in Development*].

⁴⁶ Parker was one of the first scholars to notice the impact of telecommunications in the formation of human capital. He saw information and knowledge as core elements in the development strategy of any country and he argued that telecommunications was the prime means to enhance the transfer of knowledge. See E. Parker, *An Information-Based Hypothesis*, 28 JOURNAL OF COMMUNICATIONS 81 (1978). However, it is hard to gather empirical evidence on this hypothesis.

sectors are non-linear, tending to grow at a faster pace as the network reaches a larger number of users.⁴⁷

In conclusion, there are many theoretical reasons to believe that growth rates will be positively affected by public policies promoting the expansion of access to telecommunications networks. Widespread access to ICTs generates complementarities, reduces transaction costs and contributes to improvement of human capital required for economic growth. The large positive externalities associated with ICTs lead to private production below socially desirable levels. In this context, some type of policy promoting the expansion of access to ICTs would be perfectly sensible. But purely theoretical considerations may be misleading. So it is crucial to turn to the empirical evidence evaluating how accurate these theoretical predictions are.

C. EMPIRICAL EVIDENCE OF THE IMPACT OF TELECOMMUNICATIONS ON ECONOMIC GROWTH

Economists have been intrigued by the relationship between investment in infrastructure and growth rates for quite a long time. This interest has been particularly acute in the case of telecommunications infrastructure, because of the high correlation between GDP per capita and telecommunications access observed in cross-country data. The data plotted in the two graphs below illustrate what has caught the attention of researchers.

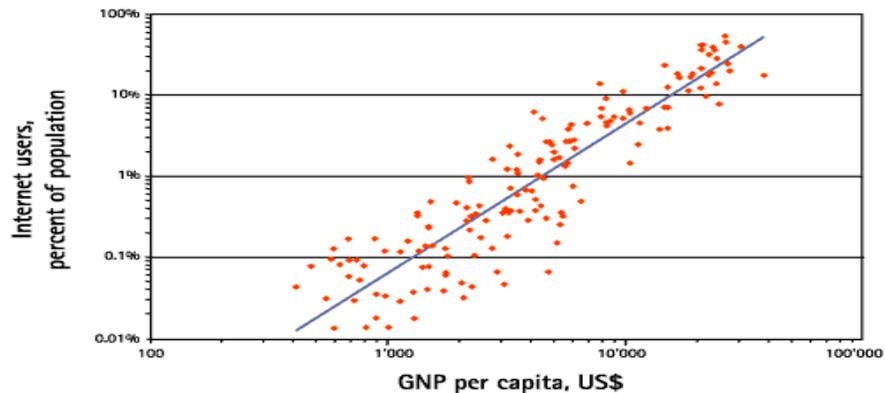
⁴⁷ Rölller and Waverman suggest this multiplier effect in an empirical study that will be discussed below: “An implication of network externalities is that the impact of telecommunications infrastructure on growth might be non-linear, as the growth impact might be larger whenever a significant network size is achieved. This would imply that positive growth effects might be subject to having achieved a critical mass in a given countries [sic] communications infrastructure.” Rölller & Waverman, *supra* note 38, at 12.

**GRAPH 2.1 – TELEPHONE PENETRATION AND GNP PER CAPITA
IN THE WORLD (SELECTED COUNTRIES)**

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Source: Juan Navas-Sabater et al., *Telecommunications and Information Services for the Poor: Toward a Strategy for Universal Access*, at 3, World Bank Discussion Paper No. 432, 2002, available at <http://rru.worldbank.org/PapersLinks/Universal-Service/>

**GRAPH 2.2 - INTERNET PENETRATION AND GNP PER CAPITA IN
THE WORLD (SELECTED COUNTRIES)**



Source: DIGITAL OPPORTUNITY INITIATIVE, CREATING A NEW DEVELOPMENT DYNAMIC: FINAL REPORT (2001) <http://www.opt-init.org/framework/DOI-Final-Report.pdf> (based on data from ITU).

The data shows a clear trend: wealthier countries present higher penetration rates of ICTs. The big problem, of course, is determining the direction of causality in the relationship between GDP per capita and telecommunications penetration. It is hard to define whether it

is growth that leads to the expansion of access to telecommunications or whether it is telecommunications that has a positive impact on growth. This issue of reverse causality is extremely important and economists have been trying to disentangle the two effects for the past four decades.

The first empirical studies associating access to telecommunications and growth were done in the 60s and 70s, sponsored by the International Telecommunications Union. These studies looked at cross-sectional time-series data and at time-series data for specific countries.⁴⁸ They pointed out the strong correlation between growth and access to telecommunications, but they did not do much more than that. Still, “[t]he somewhat simplistic first efforts did throw some light on the association between telecommunications and aggregate economic activity and gradually made planners aware of the complexity of the problems at hand.”⁴⁹ The econometric studies in the eighties and nineties built upon these early investigations, struggling to correct many of their failures.

In a study published in the early eighties, Hardy claimed to be the first one to provide “strong evidence of the telephone’s influence on economic development.”⁵⁰ He analyzed cross-sectional time-series data for 60 countries (fifteen developed and 45 developing nations), in the period between 1960 and 1973.⁵¹ His idea was to verify the impact of expansion of access to telephones in one year on economic growth in the following year. He also evaluated the impact of radio penetration on growth. The results showed that increases in telephone penetration levels had a positive influence on economic growth, while radio penetration did not have the same impact. However, he did not maintain that telephone

⁴⁸ For an interesting review of these early studies, see SAUNDERS ET AL., TELECOMMUNICATIONS AND ECONOMIC DEVELOPMENT 85-98 (1994).

⁴⁹ *Id.*, at 86.

⁵⁰ See Andrew P. Hardy, *supra* note 36, at 278.

⁵¹ *Id.*, at 281-282.

service was a necessary or sufficient cause of economic development.⁵² Rather, Hardy viewed his findings as a demonstration of the catalyst role of telephones in the context of economic development.

The interest in the impact of telecommunications on economic growth has increased since then. One study expands Hardy's analysis, employing formal statistical tests to evaluate "(i) the significance, direction and strength of the causal relationships, (ii) the time sequence underlying the causal relationships and (iii) the adjustments which may be needed to remove from the data the unrelated influences of time trend."⁵³ This study examines time-series data of the US economy over 31 years, and it finds strong evidence of causal relationships⁵⁴ in both directions: economic growth of the US economy in one period influences the expansion of telecommunications infrastructure in the next period and expansion of telecommunications in one period influences the growth rate of the economy in the next period. The authors claim that these results provide a solid basis for a telecommunications policy designed to stimulate investment in the US telecommunications infrastructure.⁵⁵ However, they do not make claims for any other country.

Canning takes a broader perspective, evaluating the contribution of investment in various kinds of infrastructure to the aggregate output of the economy.⁵⁶ The relevance of his study for present discussion is the finding that telephones have a larger impact on aggregate

⁵² *Id.*, at 280.

⁵³ See Cronin et al., *Telecommunications Infrastructure and Economic Growth: An Analysis of Causality*, 15 TELECOMMUNICATIONS POLICY 529, 530 (1991). It is worth mentioning that this study was originally sponsored by a consortium of telecommunications companies.

⁵⁴ It is important to notice that "[t]he statistical procedure for confirmation of such research hypothesis is one of rejecting, as being statistically highly improbable, the opposite or so called null-hypothesis which state that there is no such relationship." *Id.* at 530.

⁵⁵ *Id.* at 533.

⁵⁶ David Canning, *The Contribution of Infrastructure to Aggregate Output* (1999), at <http://econ.worldbank.org/docs/980.pdf>.

output than other kinds of infrastructure.⁵⁷ While power generation and transport infrastructure present roughly the same productivity effect of any other capital investment, the productivity effect of telephone infrastructure is surprisingly high. According to Canning, this suggests that telecommunications infrastructure generates larger spillovers to other sectors of the economy.⁵⁸ His study supports the view that positive externalities can lead to underinvestment, requiring some type of government action to foster the expansion of telecommunications infrastructure.

Röller and Waverman carry out further empirical investigation of spillovers from telecommunications infrastructure to other sectors of the economy, and its consequent impact on growth of aggregate output.⁵⁹ Using cross-sectional data for 35 countries (21 OECD countries and 14 developing countries or newly industrialized economies), during a twenty-year period (1970 to 1990), the authors reaffirm that the causal relationship between telecommunications infrastructure and growth runs both ways. However, they take a series of steps to control the effects of other variables on economic growth as well as country-specific fixed effects, and they ultimately conclude that the relationship between telecommunications infrastructure and growth is much reduced and its statistical significance is low. This finding suggests that the impact of telecommunications infrastructure on economic performance is not much different from other types of infrastructure, a conclusion significantly different from the other studies mentioned above.⁶⁰

Röller and Waverman also test another hypothesis: network externalities might lead to a non-linear impact on growth. In other words, the expansion of telecommunications

⁵⁷ *Id.* at 3.

⁵⁸ *Id.* at 3-4 and 15.

⁵⁹ Röller & Waverman, *supra* note 38.

⁶⁰ *Id.* at 11-12.

networks might have an increasing impact on economic growth as the network reaches larger number of users. The empirical evidence supports this hypothesis, showing that effects on growth increases with the expansion of network penetration. The authors also suggest a minimum *critical mass* necessary for telecommunications to have a positive impact on growth. They estimate that this critical mass is approximately 24 percent of penetration rate.⁶¹ This is extremely relevant, since many developing countries have penetration rates well below that mark. This evidence leads to the conclusion that significant investments in telecommunications infrastructure would have to be made before they could produce any impact on economic growth.⁶² It also suggests the existence of an important line distinguishing between the situations of less developed countries (e.g. Sub-Saharan Africa) and developing countries in more advanced stages (e.g. some Latin American and East Asian countries). The former are in a far more difficult situation than the latter.

Exploring another branch of the theoretical literature, some empirical studies attempted to evaluate the relationship between expansion of ICTs and economic growth based on a transaction cost approach. At least two studies went down this road. In a cross-sectional study, Norton concludes that expansion of telephone infrastructure provides “substantial growth- and investment-enhancing activity and thus facilitates economic growth.”⁶³ Norton’s explanation for his finding is grounded on the argument that access to telecommunications reduces transaction costs.⁶⁴ However, his study does not rule out other possible explanations for the positive impact of telecommunications on growth.

⁶¹ *Id.* at 12-13.

⁶² *Id.* at 13.

⁶³ See Norton, *supra* note 41, at 192.

⁶⁴ *Id.* at 190-192.

A more recent study addresses the hypothesis of reduction of transaction costs more precisely.⁶⁵ This study analyzed whether access to telephones affected the price dispersion of certain commodities in a set of Chinese rural villages. The hypothesis was that access to telecommunications would reduce transaction costs, allow better information flows and trade among villages, leading to the convergence of prices for commodities. Taking four commodities in the exercise (fish, pork, eggs and vegetables), the empirical evidence showed a great deal of price dispersion when comparing villages without access to telephones. The price dispersion was significantly reduced when the comparison was made among villages with access to telephones. These findings suggest that access to telephones diminishes information gaps in the market, contributing to reduce transaction costs.

The studies discussed above provide an overview of the main findings available in the empirical literature about the relationship between telecommunications infrastructure and economic growth. There are other works reaching similar findings.⁶⁶ Overall, the empirical evidence supports some kind of governmental action to expand telecommunications infrastructure, given the spillovers on other sectors of the economy and the reduction of transaction costs. However, the empirical evidence should be interpreted with caution. It is very important to keep in mind that all these studies share significant deficiencies, which must be taken into account.

⁶⁵ Karen Eggleston *et al.*, *Information and Communication Technologies, Markets and Economic Development*, in THE GLOBAL INFORMATION TECHNOLOGY REPORT 62-74 (GEOFFREY KIRKMAN *et al.* eds., 2002).

⁶⁶ See, e.g., Bedi, *The Role of ICTs in Development*, *supra* note 45, at 15-19 (providing a balanced review of the empirical literature and stating that, regardless of the statistical problems, “it is clear that there is a positive association between ICTs and growth”); Alicia M. Munnel, *Policy Watch: Infrastructure Investment and Economic Growth*, 6 JOURNAL OF ECONOMIC PERSPECTIVES 189 (1992) (arguing that general public investment in infrastructure has a “significant, positive effect on output and growth”); W. Easterly & R. Levine, *Africa’s Growth Tragedy: Policies and Ethnic Divisions*, 112 QUARTERLY JOURNAL OF ECONOMICS 1203, 1230-1233 (1997) (finding that number of telephones per worker had strong, positive impact on growth). For an analysis of the potential impacts of infrastructure investment on economic growth in Brazil, see Francisco José Zagari Rigolon & Mauricio Serrão Piccinini, *O Investimento em Infra-estrutura e a Retomada do Crescimento Econômico Sustentado*, Discussion Paper 63, BNDES (1997).

Although every new study proclaims to have found a statistical way to address the problem of reverse causality, I am not aware of any empirical research that has “solved” this problem, isolating the one-way causal relationship from telecommunications infrastructure to growth.⁶⁷ To be sure, reverse causality may not be a “solvable problem.” We may well have to live with some uncertainty regarding the degree to which growth impacts the expansion of telecommunications and the degree to which telecommunications affects growth. This feedback relationship seems to be supported both in theory and by the empirical evidence available, and it is very difficult to isolate both effects.⁶⁸

Besides the reverse causality issue, it is important to keep in mind the fact that economic growth involves very complex relationships among many variables. Therefore, any attempt to isolate the impact of one or even a few variables on growth will be artificially simplistic.⁶⁹ This complexity leads to the problem of “spurious correlation,” which refers to the fact that a certain investment that positively impacts growth may be correlated with many other actions that also positively impact growth.⁷⁰ Therefore, the isolation of that specific investment in telecommunications may overestimate its impact, capturing the effect of many actions on economic growth. Even though economists attempt to control for these spurious correlations, the complexity of the growth process makes this task nearly impossible.

Finally, there may be problems with the data used in cross-section comparisons.⁷¹ For instance, measurement of telephone penetration in developing economies does not take into

⁶⁷ See SAUNDERS ET AL., *supra* note 48, at 95 (discussing the problem of reverse causality in relation to the earlier empirical studies). See, also, Röller & Waverman, *supra* note 38, at 3 (for a recent discussion of reverse causality in empirical studies of growth).

⁶⁸ See, e.g., Scott Beardsley et al., *Telecommunications Sector Reform – A Prerequisite for Network Readiness*, in THE GLOBAL INFORMATION TECHNOLOGY REPORT: READINESS FOR THE NETWORKED WORLD 118, 123 (Geoffrey Kirkman et al. eds., 2002) (acknowledging the feedback relationship between access to ICTs and GDP growth).

⁶⁹ SAUNDERS ET AL., *supra* note 48, at 94.

⁷⁰ Röller & Waverman, *supra* note 38, at 3.

⁷¹ SAUNDERS ET AL., *supra* note 48, at 94.

account important differences in quality of service. A certain penetration rate in a country where the quality of service is bad may well lead to different impacts on growth when compared to the same penetration rate in a country where quality of service is good. Another problem with the data used in these studies is that they usually focus on telephone access. Given the technological changes of the past decade, this approach provides a partial picture, at best. However, considering the impact of different ICTs on growth would make the empirical studies much more complex.

For all these reasons, the empirical evidence discussed above must be considered with prudence. The studies suggest a positive and non-negligible impact of access to telecommunications on economic growth, but it is hard to make any inference beyond that. Then, it is reasonable to ask: does mainstream development economics take us anywhere when it comes to universal access policies? I believe it does, but not very far. So let me summarize the findings of this part and address this question more specifically.

D. WHERE MAINSTREAM DEVELOPMENT ECONOMICS TAKES US: MAKING A WEAK CASE FOR UNIVERSAL ACCESS POLICIES

In the context of mainstream development economics, the analysis showed that there are many theoretical reasons to believe that government action to expand telecommunications infrastructure tends to produce a positive effect on growth. Telecommunications infrastructure generates spillovers to other sectors – complementarities (i.e. backward linkages and forward linkages), reduction of transaction costs and improvement in human capital –, and these spillovers are magnified through network effects.

As for the empirical evidence, even though it is not very compelling, it generally supports the theoretical justifications for promoting the expansion of access to telecommunications.

It is also important to point out what the theory and the evidence do not suggest. First, they do not suggest that government action should attempt to expand access to the level of universality (i.e. access to all citizens, in all localities). Second, they also do not suggest which kinds of government actions would have the greatest impact on growth. Dealing mainly with aggregate penetration rates does not indicate which types of access will yield the greatest returns. Third, the evidence does not capture specific aspects of the impact of telecommunications infrastructure on the development of human capital. This impact may be very difficult to measure because the role of ICTs as a pathway for information exchange and diffusion of knowledge is indirect.

Therefore, mainstream development economics tells us that policies promoting widespread access to telecommunications are likely to have a positive impact on economic growth, especially in countries with low penetration rates at the outset. In this sense, some type of “access expansion policy” – not necessarily *universal* access policy – can be seen as an important piece of a broader development strategy. However, mainstream development economics also makes clear that expanding telecommunications infrastructure is no panacea for growth. The growth process is extremely complex and depends on many elements. The view of ICTs as one catalyst of the development process, among others, is probably the most realistic position within this framework.

These are certainly important findings. They show that policies promoting widespread access to communications infrastructures fit reasonably well in one of the dominant paradigms of development. They also suggest that the development rationale

justifies the promotion of access beyond market levels, especially in the face of significant spillovers to other sectors of the economy and the impact on transaction costs. Yet, the analysis up to this point supports a relatively weak case for a public policy towards *universal* access, since nothing in mainstream development economics suggests that universality would have a higher impact on growth.

Nevertheless, expansion of wealth is just one facet of development. As the next parts demonstrate, there are other dimensions in which universal access policies affect development, and taking all dimensions into consideration provides a stronger justification for the implementation of these policies in the context of developing countries.

II. UNIVERSAL ACCESS, EQUAL CITIZENSHIP AND DEVELOPMENT AS FREEDOM: THE FOCUS ON CAPABILITIES

ICTs perform an important function as an enabling tool for participation in social, economic and political activities. Individuals use ICTs in their daily life to reach out to others in a wide array of different contexts. Thus, widespread access to these tools of communication contributes to expanding individual agency and improving collective self-governance. Conversely, lack of access to ICTs can be seen as a significant handicap for social interactions. In this context, universal access policies are also grounded on an equal citizenship perspective: guaranteeing access is essential to provide all individuals with basic tools of interaction in their social settings.

Looking at this enabling role of ICTs, the impact of access to these technologies on development can be better captured through the lenses of a different paradigm, one that has

been labeled *development as freedom*.⁷² This approach perceives the expansion of human freedom as the core element of the development process. From this perspective, the relevance of access to ICTs does not rest on its instrumental function to economic growth, as conceived by mainstream development economics, but on its function as an enabling tool to augment human agency.

Building on this basic idea, I shall argue that the paradigm of development as freedom provides a powerful justification for the implementation of universal access policies in developing countries. I start by describing the broad framework proposed by this paradigm. In doing so, I look both at the theoretical underpinnings of this approach and at the pragmatic spin given to it the United Nations Development Program (UNDP). Then, I move on to discuss how access to information pathways can positively affect functionings and capabilities of individuals, promoting development. I conclude this part by tying the argument made here with the argument developed in Part I, in order to make a stronger claim in favor of public policies that promote universal access to ICTs.

A. THE CONCEPT OF DEVELOPMENT AS FREEDOM

The paradigm of development as freedom shifts the focus of development analysis. Indeed, this paradigm suggests concentrating the attention on freedoms of human beings and not on wealth created by national economies.⁷³ The wealth created is relevant only to the

⁷² Note that this dimension of the impact of access to ICTs on development can also be partially captured through the paradigm of mainstream development economics: to the extent that the enabling function of ICTs contributes to the improvement of human capital it also affects productivity, efficiency and growth – three central themes of mainstream development economics.

⁷³ Amartya Sen presents this basic view contrasting the development as freedom approach to competing models of development:

Development can be seen, it is argued here, as a process of expanding the real freedoms that people enjoy. Focusing on human freedoms contrasts

extent that it is instrumental to the expansion of human freedom. This change in perspective has profound implications for the analysis of the development process as well as the prescriptions derived from such analysis.

*i. Development as Freedom: Functionings, Capabilities and
Capability Sets*

Through the concept of development as freedom, Amartya Sen has provided a comprehensive framework for the development process.⁷⁴ Indeed, he elaborated a broad theory that encompasses not only a particular view of development, but also a particular theory of social choice.⁷⁵ In doing so, Sen attacks the foundations of modern welfare economics⁷⁶ as well as alternative theories of justice (e.g. Rawlsian conception of justice as fairness and Nozick's libertarianism).⁷⁷ In the context of this work, I shall focus solely on the implications of Sen's theory to development thought, concentrating on those particularly relevant to comprehending the impact of access to ICTs on development as freedom.

with narrower views of development, such as identifying development with growth of national product, or with the rise of personal incomes, or with industrialization, or with technological advance, or with modernization.

AMARTYA SEN, *DEVELOPMENT AS FREEDOM* 3 (1999).

⁷⁴ See, generally, SEN, *supra* note 73. Sen's *DEVELOPMENT AS FREEDOM* will serve as the primary source referred to in this analysis. This book is a synthesis of many prior works of this author. See, e.g., AMARTYA SEN, *CHOICE, WELFARE AND MEASUREMENT* (1980), *RESOURCES, VALUES AND DEVELOPMENT* (1984); *INEQUALITY REEXAMINED* (1992) and several articles. I shall refer to Sen's prior works whenever they have particularly useful discussions of the concepts examined in this part.

⁷⁵ To be sure, the paradigm I am referring to is not a sole product of Sen's work. Many other scholars contributed to the concept of development as freedom. I will focus on Sen's work here because of its tremendous influence on other works that contributed to the construction of the new paradigm and because of the breadth and depth of his argument, which is unmatched in the literature of development as freedom.

⁷⁶ Sen's quarrels with utilitarianism and welfare economics permeate his whole work. For relevant early discussions on this point see, e.g., Amartya Sen, *Rational Fools: A Critique to the Behavioral Foundations of Economic Theory*, 6 *PHILOSOPHY AND PUBLIC AFFAIRS* 317 (1977); *Personal Utilities and Public Judgments: or What's Wrong with Welfare Economics*, 89 *ECONOMIC JOURNAL* 537 (1979); *A Reply to 'Welfarism: A Defense Against Sen's Attack'*, 91 *ECONOMIC JOURNAL* 531 (1981).

⁷⁷ See, SEN, *supra* note 73, at 55-74.

Sen suggests that human freedoms are simultaneously constitutive of and instrumental to development.⁷⁸ They are constitutive in the sense that the development process is characterized as the reduction of deprivation and elimination of the substantive unfreedoms that affect people's well-being.⁷⁹ There is an intrinsic value attributed to individual agency that is not instrumental to any other end. In this particular sense, development *is* freedom. However, freedoms are also considered instruments of development, serving as means to eliminate deprivations. From the instrumental perspective, he is concerned with "the way different kinds of rights, opportunities, and entitlements contribute to the expansion of human freedom in general."⁸⁰ Different kinds of instrumental freedoms interact with each other contributing to the overall advancement of human freedom as a constitutive element. In this sense, development is *achieved through* instrumental freedoms.⁸¹

There are five instrumental freedoms considered particularly relevant for the development process: (1) political freedoms, (2) economic facilities, (3) social opportunities, (4) transparency guarantees and (5) protective security.⁸² Political freedoms and social opportunities are particularly important in the context of the argument made in this article, deserving some special attention. Political freedoms relate to the ability that people have to participate in the decision-making structures of their polity. They include the opportunity to receive information about the political process in order to scrutinize it, as well as the

⁷⁸ *Id.* at 36-37.

⁷⁹ *Id.* at 3.

⁸⁰ *Id.* at 37.

⁸¹ Putting freedom in the center stage of the development process represents an important shift in the conception of development policies. Instead of conceiving the deprived individuals of developing countries as mere beneficiaries of the development process, this approach conceives individuals as the agents of change that can lead to development. In Sen's words: "The people have to be seen in this perspective, as being actively involved – given the opportunity – in shaping their own destiny, and not just as passive recipients of the fruits of cunning development programs." *Id.* at 53.

⁸² *Id.* at 38-40.

possibility of reaching out to participate in the public debate. Social opportunities refer to arrangements made to provide education, health care and other facilities that enhance individuals' substantive freedom. These facilities affect the ability of individuals to conduct their own private life and to participate effectively in the social, economic and political realms of society. In this context, the enabling role of ICTs has significant influence both on political freedoms and social-economic opportunities in contemporary society.

Expanding substantive freedoms improves the ability of individuals to choose the life they have reasons to value. This ability is the crucial aspect of the concept of development as freedom, and it is articulated in two interrelated levels: functionings and capabilities.⁸³ According to Sen, "living may be seen as consisting of a set of interrelated 'functionings', consisting of beings and doings."⁸⁴ Functionings can be activities (such as eating, reading and seeing), or states of beings (like being well nourished, being literate, not being ashamed of poverty).⁸⁵ The actual level of achievement of functionings that a person enjoys is understood as a "vector of functionings", and it can be seen as a primary measure of well-being.⁸⁶ On another level, individual's "capability" is understood as the alternative combinations of functionings that she can achieve. In this sense, capabilities are identified with the positive freedoms that a person has to develop certain functionings (i.e. freedom "to do this" or freedom "to be that").⁸⁷ The "capability set", in turn, consists of the set of different feasible vectors of functionings that can be achieved by a person. Thus, the

⁸³ *Id.* at 74-76.

⁸⁴ SEN, *INEQUALITY REEXAMINED*, *supra* note 74, at 39.

⁸⁵ Amartya Sen, *Well-Being, Agency and Freedom: Well-Being and Freedom*, The Dewey Lectures 1984, 82 *JOURNAL PHILOSOPHY* 197-198 (1985).

⁸⁶ *Id.* at 198.

⁸⁷ *Id.* at 201. *See also* SEN, *supra* note 73, at 75. For other insightful discussions about the concept of capabilities see SEN, *INEQUALITY REEXAMINED*, *supra* note 74, at 39-55; SEN, *RESOURCES VALUES AND DEVELOPMENT*, *supra* note 74, at 307-324.

capability set can be identified with the actual opportunities a person has to lead her own life, developing whatever functionings she considers relevant.

Sen argues that both the actual functionings achieved (what a person *does* or *is*) and the capabilities to achieve certain functionings (what a person *has the opportunity* to do or to be) are important elements of well-being.⁸⁸ The freedom to achieve functionings may not be fully realized because of the individual's own choice and, even then, it is a crucial aspect of well-being. In fact, it is quite different not to achieve a certain functioning because it is not within the capability set and not to achieve the same functioning because one has chosen not to, although it was within her capability set.⁸⁹

The formulation of development as freedom synthesized above is inherently pluralistic.⁹⁰ Some functionings and capabilities may be considered more important than others and it is impossible to establish *a priori* the weights attributed to each of them. Sen acknowledges that the identification of relevant functionings and capabilities and the attribution of different weights to them imply difficult value judgments. However, he argues that such value judgments are inherent to any actual evaluation of states of affairs and, therefore, it is no comfort to attempt to evade these judgments by choosing some apparently homogeneous metric (e.g. "income" or "utility") according to which it would be possible to measure and compare everyone's advantages. There is no magic formula to reach this

⁸⁸ SEN, *supra* note 73, at 75.

⁸⁹ This quasi intuitive observation is made clear with a particularly sharp example: "Fasting is not the same thing as being forced to starve. Having the option of eating makes fasting what it is, to wit, choosing not to eat when one could have eaten." *Id.* at 76.

⁹⁰ *Id.* at 76. See also Amartya Sen, *Well-Being, Agency and Freedom: Freedom and Agency*, The Dewey Lectures 1984, 82 JOURNAL PHILOSOPHY 169, 204-208 (1985) (discussing the pluralism of the moral analysis associated with a conception of well-being focused on positive freedoms).

balance of values, which must be a product of reasoned evaluation coupled with democratic decision-making processes.⁹¹

However troubling, this difficulty does not impede the identification of some basic capabilities that are crucial for overall human freedom. For instance, there is a certain consensus that the abilities to live a long and healthy life, to have access to knowledge, to have access to resources necessary for a decent standard of living and to participate in the life of a community are basic capabilities that would receive considerable weight in almost any account of social good.⁹² As I shall argue below, the opportunity to access information and to communicate with others is also a relevant capability that must be addressed in development strategies. It is important to notice that these basic capabilities are also instrumental to one another, so that the expansion of one freedom tends to produce positive effects on others.⁹³

The perspective of development as freedom is not immune to criticism. On the contrary, scholars searching for a hard-edged theory of development, grounded on formal mathematical models, and supported by robust empirical data tend to be very skeptical and puzzled by the softness and malleability of this approach. This is especially true of scholars affiliated to mainstream development economics, who demand objective measures of

⁹¹ Sen's view is summarized in the following excerpt: "in arriving at an 'agreed' range for social evaluation (for example, in social studies of poverty), there has to be some consensus on weights, or at least on range of weights. This is a 'social choice' exercise, and it requires public discussion and a democratic understanding and acceptance." SEN, *supra* note 73, at 78-79. As mentioned before, Sen does not avoid the difficult issues of social choice. On the contrary, he has produced many works in this field. However, this is not the opportunity to get into a detailed discussion of his view of how the referred "exercise of social choice" should actually be carried out. For a discussion of Sen's approach to social choice, see Amartya Sen, *The Possibility of Social Choice*, 89 AMERICAN ECONOMIC REVIEW 349 (1999); SEN, *supra* note 73, at 249-281; AMARTYA SEN, RATIONALITY AND FREEDOM (2002).

⁹² The consensus around these basic capabilities is embodied in the Human Development Report, and to a limited extent in the Human Development Index (HDI), which is a well-accepted measure of development worldwide. I shall get back to this point when I specifically address the adoption of the development as freedom approach to development by the United Nations Development Program (UNDP). See Section II (A) (ii), *infra*.

⁹³ SEN, *supra* note 73, at 4-5. This explains how a basic freedom such as the *ability to participate in the life of the community* can also be related to an instrumental freedom identified as *social opportunity to participate in the social and political realms of society*.

development, usually focused on economic growth.⁹⁴ Because the approach of development as freedom deviates from neoclassical models of welfare economics and introduces changes in deeply rooted assumptions of these models, scholars in the mainstream tradition tend to doubt the explanatory potential of this emerging paradigm.

In the face of this type of criticism, the common answer in the development as freedom tradition is to point out that the obsession with the metrics of growth and income per capita artificially reduces the complexity of the development process. The focus on growth and income provides only the illusion of certainty, grounded on many implicit value judgments.⁹⁵ Therefore, the argument goes, it is important to understand the complexity of reality and to explicitly face the value judgments involved in the assessment of development.

There is a more subtle critique to the paradigm of development as freedom: by shifting deeply rooted perceptions in economics, and proposing a broader informational basis to evaluate the development process (i.e. evaluating freedoms and not utility or income), this paradigm takes up the very hard task of developing a much more complex theory than the main competing models available until now. For this reason, the freedom approach still remains very incomplete and its potential explanatory power has yet to be constructed on the foundations established by Amartya Sen and others.⁹⁶ There is clearly some truth in this type

⁹⁴ Srinivasan presents a particular acute critique to the conception of development as freedom and its application by the UNDP. In relation to Sen's theory, he presents two main claims. First, he argues that mainstream development economics has always acknowledged the instrumental role of growth in the expansion of human choices and therefore the development as freedom approach does not innovate in this respect. Second, he argues that it is mistaken to attempt to compare functionings among nations, since these functionings are valued differently in different places and cultures. See, e.g., T. N. Srinivasan, *Human Development: A New Paradigm or Reinvention of the Wheel?*, 84 AMERICAN ECONOMIC REVIEW 238, 238-240 (1994).

⁹⁵ SEN, *supra* note 73, at 79-81.

⁹⁶ Robert Sugden makes this point in a fairly balanced review of Sen's *Inequality Reexamined*. See Robert Sugden, *Welfare, Resources, and Capabilities: A Review of Inequality Reexamined by Amartya Sen*, 31 JOURNAL OF ECONOMIC LITERATURE 1947, 1954 (1993) ("it does seem to be clear that, were a complete theory to be built on the foundations that Sen has laid out, it would be considerably more complex than its main rivals").

of critique, which does not attack the foundations of the development as freedom paradigm, but exposes the difficulties that lie ahead.

Despite possible critiques regarding its softness and incompleteness, this approach provides a promising and powerful analytical framework for the development process. On one hand, this paradigm proposes new descriptive approaches, shifting the focus of analysis from income and growth to functionings and capabilities. On the other hand, it introduces important normative innovations, dislocating the attention from judgments based on maximization of welfare to judgments based on expansion of freedoms. These are important steps towards the understanding of the development process.

Moreover, it is relevant to reaffirm that the new paradigm does not deny the importance of growth for development. On the contrary, the freedom approach sees growth as a crucial dimension of development.⁹⁷ Actually, this approach incorporates many considerations made by mainstream development economics in a different and broader theoretical framework. To be sure, development as freedom significantly departs from mainstream development economics in many aspects, establishing different methodological, behavioral and normative assumptions. However, both paradigms are not mutually exclusive given that economic growth remains an important element of both. Thus, theoretically, policies that aim at fostering growth, directly contributing to the expansion of human

⁹⁷ Sen makes this point several times during the construction of his argument of development as freedom. See SEN, *supra* note 73, at 20 (“the role of income and wealth – important as it is along with other influences – has to be integrated into a broader and fuller picture of success and deprivation”). *Id.* at 40 (arguing that economic growth contributes to development through the increase of private incomes and expansion of social services). As a flip side of the argument that growth contributes to the expansion of capabilities, Sen also acknowledges that the notions of poverty as inadequacy of capabilities and poverty as lowness of income are related, “since income is such an important means to capabilities.” *Id.* at 90. These are just some examples of the integration of growth concerns in the paradigm of development as freedom.

capabilities, would perfectly fit in the prescriptions derived from both paradigms of development.

The development as freedom approach has had a significant impact not only in academic circles, but also in the policy debates conducted in national and international arenas. This paradigm gained momentum in policymaking activities when the United Nations Development Program (UNDP) embraced it during the 90s. In fact, the UNDP played an important role in the creation of analytic tools and diffusion of policy recommendations within the theoretical foundations of development as freedom. Given the importance of this pragmatic twist for concrete policy considerations, I now turn my attention to it.

*ii. UNDP and Development as Freedom: From Theory to
Policymaking, with a Twist*

Building on the theoretical framework developed by Amartya Sen, and on the pragmatic insights of Mahbub ul Haq,⁹⁸ the United Nations Development Program launched the groundbreaking Human Development Report (HDR) in 1990. The first HDR defined human development as a “process of enlarging people’s choices”⁹⁹ – a clear reference to the concept of the capability set discussed above. The report proposed an explicit shift in the evaluative approach to development. Suggesting that the use of income as a proxy for all human choices was only partially appropriate, the report went on to propose ways to evaluate the expansion of human capabilities. The HDR established a new approach to analyzing the development process and, based on that analysis, it went on to make a series of policy

⁹⁸ Haq is considered the father of the Human Development Report and the Human Development Index. *See, generally*, MAHBUB UL HAQ, REFLECTIONS ON HUMAN DEVELOPMENT (1995).

⁹⁹ UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 10 (1990).

recommendations. In sum, the UNDP took the development as freedom approach and transformed it into a powerful tool of assessment and prescription, through a series of simplifications and a fair dose of pragmatism. Since 1990, the UNDP has published annual HDRs, which have become major references in the development policy arena.¹⁰⁰

On the evaluative dimension, the HDR identified three basic capabilities that could be considered constitutive of development: the abilities to lead a long and healthy life, to be educated, and to enjoy a decent standard of living.¹⁰¹ Given these basic capabilities, the report went on to present its main innovative tool for development assessment: the Human Development Index (HDI) – a new proxy to evaluate human development. The HDI was constructed as a sum of three indicators that would serve as proxies of each of the basic capabilities.¹⁰² More recently, a fourth basic capability was recognized by the UNDP: the ability to participate in the life of the community.¹⁰³ However, given the difficulty of measuring this capability, it has not been included in the HDI.

Even though many other capabilities were explicitly referred to as part of the development process, those mentioned above were considered the most basic, the ones on which all others would depend upon in one way or another. The aim of the HDR was to select capabilities that were both universally valued and so basic to human life that their lack

¹⁰⁰ For an appraisal of the first ten years of HDR publication and its impact in the discussion of development, see AMARTYA SEN, *A Decade of Human Development*, 1 JOURNAL OF HUMAN DEVELOPMENT 17 (2000) [hereinafter Sen, *A Decade of Human Development*].

¹⁰¹ UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 10 (1990).

¹⁰² The indicators are respectively: *life expectancy at birth* for long and healthy life, *literacy rates and combined school enrollment* for education and *GDP per capita (PPP\$)* for standard of living. These three indicators are normalized, scaled and added up to form HDI. My interest here is in the choice of basic capabilities to form the HDI, rather than in the methodology used to compose the index. Thus, a detailed discussion of the methodology is beyond the scope of my analysis. For an enlightening explanation of the HDI and its methodology, see Selim Jahan, *Measuring living standard and poverty: Human Development Index as an alternative measure*, at http://www.umass.edu/peri/pdfs/glw_jahan.pdf. For critiques on the methodology used by the UNDP from a perspective of mainstream development economics, see Srinivasan, *supra* note 94, at 240-241.

¹⁰³ UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 9 (1999).

would foreclose many options.¹⁰⁴ Focusing on some core capabilities is obviously a simplification of Sen's framework as described above, but this analytical move made the HDI manageable and attractive for policy considerations – the index is a simple and useful proxy. At the same time, this simplification might exclude many other important elements from the policy agenda. For that reason, throughout the 90s, HDRs attempted to focus on many other relevant capabilities, demonstrating that the evaluation of development also means opening a reasoned debate about which capabilities are relevant for human well-being.¹⁰⁵

These innovations in the evaluative approach to development had great influence on policy considerations to foster the development process. In the context of mainstream development economics, as discussed above, the main goal of public policy in the development arena was conceived as the promotion of economic growth and expansion of wealth. According to the freedom approach, while growth remains an important objective, the role of public policy is envisaged as the expansion of human freedoms (i.e. functionings and capabilities). In this sense, the change in perception about what development actually *is* led to a shift in the view of what *should* be done to foster development.¹⁰⁶

An illustration contrasting the two approaches and their impact on policy considerations can be helpful. The concentration of mainstream development economics on income and growth indicators leads to the presumption that a country with higher or

¹⁰⁴ The criteria for choosing the basic capabilities were discussed by the Director of the Human Development Report in a recent paper. See Sakiko Fukuda-Parr, *Rescuing the Human Development Concept from the HDI: Reflections on a New Agenda* 7-9, at http://hdr.undp.org/docs/training/oxford/readings/fukuda-parr_Rescuing.pdf.

¹⁰⁵ See Sen, *A Decade of Human Development*, *supra* note 100, at 22 (“the world of evaluation was open to pragmatic reasoning, invoking different kinds of argument within a broad and permissive framework of reasoned social evaluation”). In this context, I shall argue in the next section that one important capability in the contemporary world is the ability to access information and communicate with others.

¹⁰⁶ Although in a different setting, Mashaw points out the crucial relationship between perceptions of the world and prescriptions to modify it. See, JERRY MASHAW, *GREED, CHAOS AND GOVERNMENT* 3-4 (1997).

equivalent income per capita and rapid economic growth would necessarily be “better off” than a country with lower or equivalent income per capita and slow economic growth. Therefore, in this view, national governments should work to promote growth in order to raise income per capita. However, when we expand the notion of development, looking at indicators that reflect actual human capabilities, we find a very different picture.¹⁰⁷ Among countries that have experienced rapid economic growth, there are some with great success in raising the length and quality of life (e.g. South Korea and Taiwan) and some that have not been as successful (e.g. Brazil). Therefore, policies focusing exclusively on economic growth may be missing some of the most important aspects of the development process.

Indeed, given the broader evaluative perspective, public policies should be designed to expand capabilities. The positive impact of public policies on growth is relevant in so far such impact is translated into human freedom. Moreover, certain policies towards the expansion of human freedom may have little or no impact on growth and still be regarded as extremely important from the freedom perspective. As a general matter, public policies towards the expansion of capabilities are important in and of themselves, and not because of any instrumental relationship with economic growth.

In this framework, the relationship between universal access policies and development must be analyzed with reference to the impact of these policies on the expansion of human capabilities. The next section addresses this issue, arguing that such impact is positive and significant, *justifying* and even *requiring* governmental action towards the expansion of access to ICTs in developing countries.

¹⁰⁷ The example used here is taken from Amartya Sen. SEN, *supra* note 73, 44-46. For an analogous illustration see UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 9, Table 1.1, (1990) (showing discrepancies in income per capita and achievements in basic capabilities of various countries).

B. UNIVERSAL ACCESS POLICIES AND THEIR IMPACT ON FREEDOMS, FUNCTIONINGS AND CAPABILITIES

The rapid technological changes of the 90s generated great optimism regarding the possible impact of ICTs in human well-being. However, we have not yet fully understood the different ways in which access ICTs may positively affect freedoms, functionings and capabilities.¹⁰⁸ In this section, I argue that access to ICTs expands functionings and capabilities on three different levels: (i) by contributing to the expansion of *communicative freedoms* of human beings; (ii) by playing an instrumental role in the expansion of four *basic constitutive functionings and capabilities* and (iii) by fostering some of the *core instrumental functionings and capabilities*. I will take each one of these levels in turn.

First, access to ICTs directly expands the human ability to access information and to communicate (i.e. to exchange information with others). Human beings are inherently communicative creatures who express themselves and establish relations with others through utterances that are transmitted and stored in different media (e.g. oral, print, airwaves, copper wire, magnetic disks and many others). This ability can be considered in and of itself an important functioning, which I shall denominate *communicative functioning*. Following the terminology developed by Sen, I refer to the opportunity to develop this functioning as *communicative capability*, which is an important human freedom.¹⁰⁹

¹⁰⁸ There has been much discussion about this issue, which ultimately led to the publication of an HDR entitled Making New Technology Work for Human Development. *See, generally*, UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT (2001).

¹⁰⁹ Note that I am not arguing that the opportunity to access information and communicate should be treated as if it was in the same level as the basic capabilities identified by the UNDP. My claim is less ambitious: I am arguing that the opportunity to access information and communicate is a relevant capability that would be accepted as such in a very wide array of definitions of social good.

Access to ICTs in general, and to digital networks in particular, expands the communicative capability of human beings. The capacity to communicate over short and long distances, receiving and sending sounds, words, static images and video in fractions of a second enhances the ability to exchange information with others. This is a tremendous expansion in the human freedom to communicate.

In contrast, in the absence of ICTs, individual ability to access certain types of information and to communicate with individuals and organizations not located in the vicinity is severely impaired. This is not to say that there is no other way to communicate over distances – in most situations, a person could write a letter or travel. My point here is much narrower (but not less important): the alternatives available in the absence of access to ICTs do not deliver equivalent functionalities (e.g. synchronic conversation made possible by telephone or asynchronous, but nearly instantaneous, written exchanges made possible through e-mail), and in this particular sense the lack of access to these technologies restricts the available choices of individuals.

This limitation of alternatives is not only quantitative, but also qualitative. The choice regarding the means of communications tends to affect both the communicative relation and the message transmitted. For example, a decision about whether to communicate a certain idea through a letter, a telephone conversation, or an e-mail exchange affects both the nature of the communicative relation and the content of the message: a letter tends to structure the entire message in a narrative from the beginning to the end; the telephone presents a much more fluid medium where messages can be exchanged without much structure and corrected along the conversation; an e-mail exchange probably lies somewhere in between. In this context, access to ICTs expands the communicative capability in a qualitative sense: by

having the choice among different means of communication, individuals can express different ideas and establish different kinds of communicative relations.¹¹⁰

Nevertheless, it is important to acknowledge that human communicative capability is not affected only by access to ICTs. It is also influenced by many other elements, such as the overall level of education, mental capacity, language skills and many others. Without these elements, communicative capabilities may remain severely limited even where access to ICTs is available. In other words, access to ICTs is no panacea for expanding communicative capabilities. Still, this acknowledgement does not change the fact that, other things being equal, access to ICTs tends to enhance communicative freedom for the reasons presented above.

A second way in which access to ICTs affects development as freedom is through their instrumental role in the expansion of the four basic capabilities. First, access to ICTs has become an important element for health policies, affecting the capability to live a long and healthy life. Especially in developing countries, ICTs are potent tools to coordinate governmental action and maximize the use of scarce resources in the health care arena. Second, access to ICTs produces a direct impact on education policies. Indeed, digital

¹¹⁰ There is much discussion in communications theory about how the medium affects the message. This discussion symbolized by McLuhan's celebrated phrase: "the medium is the message." MARSHALL MCLUHAN, *UNDERSTANDING MEDIA: THE EXTENSIONS OF MAN* 7 (1994) (originally published in 1964). In some contexts, this debate evolves towards a rather deterministic approach to the impact of new technologies in the human ability to communicate. *See, e.g.* NEIL POSTMAN, *AMUSING OURSELVES TO DEATH: PUBLIC DISCOURSE IN THE AGE OF SHOW BUSINESS* (1985) (describing the transition from print media to television and the maladies of the new medium). This approach also yields to interesting insights about the social impact of the prevalent medium in any given point in time. *See, e.g.*, HAROLD ADAMS INNIS, *THE BIAS OF COMMUNICATION* 33-60 (1951) ("a medium of communication has an important influence on the dissemination of knowledge over space and over time and it becomes necessary to study its characteristics in order to appraise its influence in the cultural setting"). It is well beyond the scope of this work to examine how different media affect the messages transmitted, or to evaluate the sociological and cultural impact of different media. The issue of interest is one that seems to be cutting across all the lines of thought mentioned above: the choice of medium affects the ability to communicate. Thus, the opportunity to use different media expands the communicative capability of human beings in a qualitative sense.

networks are powerful learning tools, providing access to large amounts of information and serving as tools in the learning process. Third, access to ICTs is relevant for participation in the life of the community, be it at the local, national or international level. In the contemporary world, the lack of access to ICTs effectively means exclusion from broader communities beyond the local level. Fourth, to the extent that widespread access to ICTs contributes to economic growth,¹¹¹ it is possible to say that it has an indirect effect on levels of income and, therefore, it also contributes to the expansion of the basic capability of reaching decent standards of living.¹¹²

Finally, on a third level, beyond the impact on basic capabilities, access to ICTs enhances some core instrumental capabilities identified by Amartya Sen. Indeed, access to ICTs is very important to the exercise of political freedoms and to the expansion of social opportunities. On the political ground, access dramatically lowers the costs of organization, encouraging participation in the public sphere. Conversely, absence of access to these technologies impairs the organization of civil society and the construction of coalitions at the grassroots' level.¹¹³ On the realm of social opportunities, access to ICTs is essential to expand the ability of individuals to participate in the social, economic and political spheres of society – this ability is both a basic capability and an instrumental freedom that helps to expand other freedoms.

¹¹¹ See Part I, *supra*. See also Part II, Section D, *infra*, tying together the arguments made according to mainstream development economics and the argument made according to the development as freedom approach.

¹¹² As pointed out in note 103, *supra*, purchasing-power-adjusted real GDP per capita is used as a proxy for measuring the standard of living. In fact, income per capita is seen as the best indicator available to measure the ability of individuals to command the necessary resources for a decent standard of living. See UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT (1990).

¹¹³ It is important to emphasize that I am not arguing that access ICTs will necessarily lead to a more active public sphere or a qualitatively “better” political participation in any sense. This may or may not be the case, depending on a wide array of different elements. My claim is much simpler: in the absence of ICTs (e.g. telephones and Internet) the barriers to political organization beyond the local level are very significant. Therefore, promoting access reduces these barriers and, in this narrow sense, expands the political freedom.

Because access to ICTs can foster the expansion of capabilities in many ways, it is not surprising that a strong relationship between ICTs and development has been frequently acknowledged.¹¹⁴ In fact, there has been much discussion about the so-called *digital divide* that separates developed and developing countries, and how bridging the divide may have a substantial positive impact in human development worldwide. This discussion unfolds in many different directions (not all of them very fruitful), going well beyond issues of access. However, for obvious reasons, access and connectivity play major roles in this debate, permeating all other aspects.

In the absence of universal access to ICTs, a significant part of the population, especially the most disadvantaged segments, will be further handicapped in their basic capabilities. In this particular sense, access to ICTs may be distinguished from access to many other commodities and services that do not present the same potential for positive impact on human freedoms. Therefore, policies promoting universal access to ICTs are not only *reasonable* governmental actions but are also *necessary* ones to foster human development.

¹¹⁴ The United Nations Development Program itself has acknowledged this relationship in many different occasions. See, e.g., UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 24 (1993) (discussing how the *information revolution* impacts participation); UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 57-66 (1999) (discussing how access to communications technologies opens new opportunities for small players to enter the global marketplace and political arena); UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT (2001) (the entire report discusses “how to make new technologies work for human development,” with especial emphasis on the use of ICTs in a networked world); and UNITED NATIONS DEVELOPMENT PROGRAM (UNDP), HUMAN DEVELOPMENT REPORT 77 (2002) (presenting anecdotal evidence of how the Internet is contributing to create a more democratic media). Other international initiatives have also discussed the potential positive impact of access to ICTs on human development. See, e.g., DIGITAL OPPORTUNITY INITIATIVE, CREATING A NEW DEVELOPMENT DYNAMIC: FINAL REPORT (2001), at <http://www.opt-init.org/framework/DOI-Final-Report.pdf> (providing substantial anecdotal evidence of the impact of ICTs in human development); GEOFFREY KIRKMAN *ET AL.*, THE GLOBAL INFORMATION TECHNOLOGY REPORT (2002) (this report presents the Networked Readiness Index, which is an interesting measure of actual use of digital networks and the enabling factors to use these networks); DIGITAL OPPORTUNITY TASK FORCE, DIGITAL OPPORTUNITIES FOR ALL: MEETING THE CHALLENGE (2001) (discussing the challenges to bridge the digital divide), at http://www.dotforce.org/reports/DOT_Force_Report_V_5.0h.html.

C. TYING TOGETHER MAINSTREAM DEVELOPMENT ECONOMICS AND DEVELOPMENT
AS FREEDOM: MAKING A STRONG CASE FOR UNIVERSAL ACCESS POLICIES

Looking at universal access policies within the framework of development as freedom provides a robust argument for their implementation in developing countries. From this perspective, even if the growth effects of these policies were negligible or indeterminate, such policies would still be justified based on grounds of their positive effects on human freedoms. Moreover, the perspective of development as freedom justifies not only a policy towards expansion of access to ICTs, but also a policy promoting *universal levels of access*, since it is important to expand capabilities of all individuals in a given society. In this sense, equality of capabilities is an inherent part of the development as freedom approach – I shall get back to this point about equality in Part IV.

However, this is not all. As shown in Part I, there are important theoretical reasons and a reasonable amount of empirical evidence supporting the finding that widespread access to ICTs has a positive and non-negligible impact on economic growth. In this sense, policies promoting the expansion of access can fit reasonably well in both paradigms discussed above and their respective prescriptions of development strategies. This is especially true when access to ICTs is still quite limited (e.g. the first public telephone brought to a village tends to have a very large positive impact). Consequently, from the perspective of development as freedom, both arguments presented so far can be combined to make a strong case for universal access policies in the context of developing countries. In fact, these policies are necessary to promote development because they advance human freedoms in two ways: on one hand, they have a direct positive impact on a wide array of human capabilities; on the

other hand, they tend to produce a non-negligible positive impact on growth, which in turn further expands human capabilities.

III. UNIVERSAL ACCESS, DISTRIBUTIVE EFFECTS AND DEVELOPMENT PROCESS: THE FOCUS ON EQUITY

The third rationale underlying the design and implementation of universal access policies in developing countries is associated with the redistributive effects of these policies. Just as with the other two rationales (i.e. efficiency and equal citizenship), this one can also be analyzed from the perspective of development theory. This is the task of the following sections.

A. EQUALITY, INCOME OPPORTUNITY, AND ECONOMIC GROWTH

Mainstream development economics has been struggling with the effects of inequality on economic performance for quite a while.¹¹⁵ Two questions are particularly salient in this struggle. First, what is the impact of economic growth on inequality? Second, what is the effect of reducing inequality on economic growth? The second question is especially relevant for the present analysis, since universal access policies tend to have a positive impact on the reduction of inequality. However, so far, economic theory has not given a definite answer to this inquiry.

¹¹⁵ For excellent surveys of this literature, see William R. Cline, *Distribution and Development: A Survey of the Literature*, 1 JOURNAL OF DEVELOPMENT ECONOMICS 359 (1975); Arne Bigsten & Jörgen Levin, *Growth, Income Distribution and Poverty*, Working Paper in Economics No. 32, November 2000, Göteborg University; Eric Thorbeck & Chutatong Charumilind, *Economic Inequality and Socioeconomic Impact*, 30 WORLD DEVELOPMENT 1477 (2002).

After World War II, with the emergence of modern development economics, some systematic works regarding the problem of inequality and development were produced. Simon Kuznets provided the first landmark work of the post-war period.¹¹⁶ Based on the assumption that only the groups in the upper-income brackets saved part of their income,¹¹⁷ Kuznets proposed the existence of a pattern that became known as the inverted-U hypothesis. He suggested that, in the early stages of development, growth would necessarily lead to an increase in inequality, and only in more advanced stages of development inequality would gradually decrease. This reduction would be related to political factors, such as the organization of the lower classes in urban centers to participate in the political process.¹¹⁸

Since Kuznets's work, much of the discussion regarding growth and inequality has been around the confirmation or rejection of his hypothesis. Although some progress has been made, significant uncertainty remains, and there are still many doubts in this field. Overall, the inverted-U hypothesis has not been confirmed and there is evidence that causality between growth and inequality can run both ways.¹¹⁹ On one hand, depending on the institutional settings, growth can lead to a reduction or an increase in inequality. On the other hand, inequality can limit or boost the growth.

More recently, there has been an increasing amount of work suggesting that inequality may actually hinder growth. These works are mainly grounded on the political economy effects of inequality in developing countries. They point out that high levels of inequality tend to produce the following effects: (i) rent-seeking behavior that reduces the

¹¹⁶ Simon Kuznets, *Economic Growth and Income Inequality*, 45 THE AMERICAN ECONOMIC REVIEW 1 (1955).

¹¹⁷ *Id.* at 7. Kuznets argues that because only groups in the upper-income brackets save, they concentrate an increasing share of income-yielding assets. This serves as the basis for larger income shares of these groups and their descendents.

¹¹⁸ *Id.* at 17-18.

¹¹⁹ See Bigsten & Levin, *supra* note 115, at 11.

security of property rights; (ii) social tensions and political instability that drives investment away; (iii) relatively poor median voters that will vote for higher taxes to fuel immediate redistribution, while producing negative impacts on long-term growth; and (iv) larger population growth.¹²⁰ From this perspective, a more equal distribution of wealth tends to bring stability and to align the incentives of individuals in the direction of pursuing economic growth.

In this sense, policies that contribute to the reduction of inequality tend to have a positive impact on economic growth in the long run.¹²¹ Government actions like education policy, which are not purely redistributive and operate through an increase in income opportunity, tend to have the largest impact. Governments should attempt to increase opportunities of groups in the lower income-brackets, providing the tools and incentives for individuals to pull out of poverty.¹²² These actions would help creating a stable environment for economic growth.

From this perspective, a well-designed universal access policy may play a role as a redistributive tool. Expanding access to ICTs increases the opportunity for future income generation to the extent that these technologies have become important channels for participation in the economic realm of society. There are many anecdotes about how this may happen and this is not the moment to revisit them. The important point here is that universal access policies tend to produce a non-negligible impact on income opportunities of individuals, especially in the most isolated areas, who will have the ability to participate

¹²⁰ See Thorbeck & Charumilind, *supra* note 115, at 1480. Easterly also points out how inequality can generate instability and disrupt growth oriented policies. See EASTERLY, *supra* note 5, at 263-265.

¹²¹ See Thorbeck & Charumilind, *supra* note 115, at 1480-1485.

¹²² Easterly defends government policies that increase income opportunity and provide incentives to the poor, while attacking purely redistributive policies that foster current consumption with no impact in the future income creation. See EASTERLY, *supra* note 5, at 168-169 and 265.

more actively in economic transactions such as the trade of goods (e.g. artisans that can sell their products through the Internet) and the employment market (e.g. individuals can use ICTs to search for jobs and to work across distances).

This is not to say that universal access policies should be the core government action towards the reduction of inequality. Of course, many public policies have far more relevant impact on inequality than universal access. But access policies can be one piece of the strategy needed to improve equality in the economic realm. Most importantly, it is a piece that fits well with many others in this puzzle, producing a positive impact on other core public policies with distributive effects (e.g. education), improving the overall ability of governments to reduce poverty. Thus, by reducing inequality, universal access to ICTs also contributes to growth-oriented development.

B. EQUALITY OF CAPABILITIES AND DEVELOPMENT AS FREEDOM

The general conception of equality in the development debate is very much influenced by the notion of equality of income, as discussed in the prior section. However, the aspiration of equality can be articulated in evaluative spaces other than income. From the development as freedom approach, equality should be evaluated in the space of capabilities.¹²³ Although equality of income may contribute to equality of capabilities, the latter implies a substantially different type of analysis than the former. The focus on equality of capabilities suggests an even stronger argument in favor of universal access policies.

¹²³ Amartya Sen discusses this conception of equality in many different opportunities, some of which are especially important for the analysis in this part. *See, e.g.,* SEN, *supra* note 73, at 92-94; AMARTYA SEN, *INEQUALITY REEXAMINED* (1992); Amartya Sen, *Inequality of What?*, in *LIBERTY, EQUALITY AND LAW* (Sterling M. McMurrin ed., 1987).

Indeed, as discussed above, access to ICTs fosters a wide array of capabilities, including basic and instrumental capabilities as well as communicative capabilities. In this sense, deprivation of access to these technologies may generate substantial inequality in the freedom that individuals enjoy to lead their lives, deepening what Sen calls “capability poverty.”¹²⁴ Inequality in this context assumes a broader and more troubling sense than the mere consideration of income inequality.

For the same reason, universal access policies help reduce deprivation and inequality in a more fundamental manner than the equalization of income suggested in the prior section. Actually, the impact of access to ICTs on the equalization of income – which may be somewhat tenuous – becomes less relevant, since these technologies contribute to the expansion of capabilities regardless of their effect on income generation. That is to say, to the extent that access to ICTs are important resources to expand human freedom, it becomes relevant to articulate a public policy to extend access to these resources to all individuals.¹²⁵

The concept of development as freedom also expands the notion of equality in another way. It highlights that relative poverty and deprivation in terms of income may yield to absolute poverty in terms of capabilities.¹²⁶ Sen illustrates this point by suggesting that in opulent countries, more income may be needed to gather the resources to achieve the same social functionings. Actually, the specific example he provides refers to the lack of access to modern equipment (such as ICTs) as an inherent part of inequality in these countries.

¹²⁴ See SEN, *supra* note 73, at 90-92.

¹²⁵ To be sure Sen distinguishes access to certain resources from development of capabilities. However, he does acknowledge that access to resources may be a means to reach capabilities. See SEN, *INEQUALITY REEXAMINED*, *supra* note 123, at 26-28.

¹²⁶ See SEN, *supra* note 73, at 189.

Without access to this equipment, the argument goes, individuals may face difficulties in “taking part in the life of the community,”¹²⁷ being deprived of an important capability.

Even though Sen is concerned with demonstrating how the concept of capability poverty applies to developed countries, the same argument is also applicable to countries in intermediate stages of development. Indeed, these countries are marked by a duality in society. At the same time that some sectors of the economy and some social groups find themselves in a social environment comparable to that in the developed world, other sectors and groups find themselves in a social environment of pre-modern societies. This stark contrast leads to even deeper perceptions of exclusion than those referred to by Sen to describe poverty in developed countries.

Thus, universal access policies in such context could have a relevant impact on the inclusion of marginalized individuals in society. Leveling capabilities fosters development as freedom. Actually, the very notion of equality of capability is in the core of this conception of development. The thrust of the idea is that development should expand capabilities of all individuals in a given society.

C. ECLAC AND PRODUCTIVE TRANSFORMATION WITH EQUITY: DISTRIBUTION, DEVELOPMENT AND ACCESS TO ICTS

The most influential Latin American school of thought in the arena of international development is that of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC).¹²⁸ Over more than five decades, ECLAC became the main Latin

¹²⁷ *Id.*

¹²⁸ For a collection of the main works from ECLAC in the past 50 years, see *CINQUENTA ANOS DE PENSAMENTO DA CEPAL* (Ricardo Bielschowsky, ed., 2000).

American voice in the development debate, proposing unorthodox views of the development process and breeding alternative accounts of the issues related to it.¹²⁹

During most of its history, the scholars of ECLAC have been occupied with macroeconomic policies in the Latin American countries, with especial attention to inflation, trade, exchange rates, foreign debt and so forth. The integration of microeconomic policies in macro-strategies for development is a recent phenomenon at ECLAC.¹³⁰ This explains why this article did not establish a more intense dialog with this school of thought. However, the relationship between development and equity is among ECLAC's main themes and a discussion about the subject, especially in the Latin American context, would be incomplete without reference to this school of thought.

In the sixties, the early period of ECLAC, the issue of equality and development was first articulated in an argument that became known as the "stagnation thesis."¹³¹ This thesis suggested that Latin American economies were trapped in a vicious circle created essentially by the skewed distribution of income. The highly unequal societies drove demand patterns to luxury and durable products that would fulfill the needs of the upper class. In general, the production of these goods was capital intensive and, therefore, it failed to absorb great amounts of workers. This contributed to deepen the gap between classes. Furthermore, given

¹²⁹ Among the most innovative works of ECLAC is the dependency theory proposed by Cardoso and Faletto during the sixties, with significant impact in the international debate. See F.H. CARDOSO & ENZO FALETTO, *DEPENDENCIA Y DESAROLLO EN AMÉRICA LATINA* (1969).

¹³⁰ The microeconomic agenda and its integration with the macro-strategy for development is primarily (although not exclusively) a phenomenon of the nineties in ECLAC's thought. Under the broad umbrella of the strategy called "productive transformation with equity," ECLAC has incorporated many discussions about sector-specific policies, including policies toward the telecommunications sector. For a general discussion of the strategy of "structural transformation with equity, see ECLAC, *Transformação Produtiva com Equidade: A Tarefa Prioritária do Desenvolvimento da América Latina e do Caribe nos Anos 1990*, in CINQUENTA ANOS DE PENSAMENTO DA CEPAL, *supra* note 128, at 889.

¹³¹ Celso Furtado is known as the author of the stagnation thesis and he has developed this view in many works. See, e.g. CELSO FURTADO, *OBSTACLES TO DEVELOPMENT IN LATIN AMERICA* (1970), Celso Furtado, *Desenvolvimento e Subdesenvolvimento*, in CINQUENTA ANOS DE PENSAMENTO DA CEPAL, *supra* note 128, at 239.

the inability to boost demand in the lower classes for non-durable products, the strategy of import substitution was limited to the mentioned luxury goods. In this view, in order to put Latin American countries back on the track of growth and development, it would be essential to promote radical redistribution of wealth.

Shortly afterwards, in the beginning of the seventies, this thesis would be proved misguided by the Brazilian experience. In the first half of the decade, in a period known as the Brazilian miracle, the country achieved very rapid growth while aggravating even further the already skewed distribution of wealth. Indeed, further reduction of wages helped finance the development process through an increase in demand for durable goods.¹³² This experience showed that, even though redistribution might lead to a more desirable path of development from a fairness standpoint, there were many different styles of development possible, some of which might even lead to more inequality.

In the early nineties, after a decade completely focused on adjustment policies on the macroeconomic level, the discussion about equality in the Latin American development process regained space in ECLAC. However, equity was not seen anymore as a condition for economic development, but rather as an important element to achieve a balanced development process with social justice. In a tentative program to build a new strategy for regional development, ECLAC's scholars defined the goal of the decade as the establishment of a style of development focused on "productive transformation with equity."¹³³

¹³² This point was made by Tavares and Serra in an influential article in the beginning of the 70s. See Maria da Conceição Tavares e José Serra, *Além da Estagnação: Uma Discussão Sobre o Estilo de Desenvolvimento Recente do Brasil*, in CINQUENTA ANOS DE PENSAMENTO DA CEPAL, *supra* note 128, at 591. For accounts of this debate about the stagnation thesis, see Cline, *supra* note 115, at 375 and Ricardo Bielschowsky, *Cinquenta Anos de Pensamento da CEPAL – Uma Resenha*, in CINQUENTA ANOS DE PENSAMENTO DA CEPAL, *supra* note 128, at 37-54.

¹³³ See, generally, *supra* note 130.

Equity in this new policy strategy is seen both as an imperative of social justice and as a contribution to social cohesion required in the development process. In the document that opens this new stage of reflection, ECLAC suggests that the search for productive transformation and competitiveness must be accompanied by redistributive policies.¹³⁴ Among these policies, it establishes the necessity of adequate provision of services with social impact to the population in the lower income-brackets.

More specifically, in recent publications, ECLAC has addressed the importance of expanding access to ICTs in the context of “productive transformation with equity.” Access to these new technologies is thought of as an important part of the development strategy. On one level, ECLAC expressly recognized the importance of integrating ICTs with education policies.¹³⁵ On another level, ECLAC highlights the importance of expanding access to ICTs in poor neighborhoods in order to allow all social groups to participate in the transition to the so-called Information Society.¹³⁶

In conclusion, within the unorthodox circles of ECLAC, policies towards widespread access to ICTs are considered increasingly important to fostering development in Latin America. ECLAC’s recent work recognized not only the importance of ICTs for productive transformation, but also the equity concerns involved in the expansion of access to these technologies.

¹³⁴ *Id.*

¹³⁵ See United Nations Economic Commission for Latin America and the Caribbean (ECLAC), *O Hiato da Equidade: América Latina Caribe e Conferência de Cúpula Social*, in CINQUENTA ANOS DE PENSAMENTO DA CEPAL, *supra* note 128, at 37-54.

¹³⁶ United Nations Economic Commission for Latin America and the Caribbean (ECLAC), *América Latina y El Caribe en La Transición Hacia una Sociedad del Conocimiento: Una Agenda de Políticas Públicas* (2000), at <http://www.eclac.cl/cgi-bin/getProd.asp?xml=/publicaciones/xml/2/4312/P4312.xml&xsl=/tpl/p9f.xsl&base=/tpl/top-bottom.xslt>.

D. UNIVERSAL ACCESS, DISTRIBUTION AND DEVELOPMENT: TOWARDS A CONSENSUS

The distributive rationale of universal access policies also has implications for the development process. As discussed in this Part, reduction of inequality is an important piece of the two dominant development paradigms. Universal access policies have a positive impact in the reduction of inequalities both in the income space and in the capability space, contributing at the same time to fostering development as growth and development as freedom. Moreover, I also argued that universal access policies fit well in the new policy agenda developed by ECLAC in the early nineties. The analysis provided here shows a certain consensus of different paradigms regarding the importance of the equity effects of universal access policies for development strategies.

IV. SUMMARY

This article established the foundations of universal access policies in developing countries. As argued above, public policies in poor countries require justifications in the context of broader development strategies. When the ultimate goal of governments is to put their countries on the track of development, the impact of specific public policies on this goal is of much relevance for their adoption in the first place, as well as for their design and implementation (i.e. they should be designed to reach the largest positive effect on development).

I argued that, from the perspective of development theory, there are three basic rationales for access policies. First, from the perspective of mainstream development economics, gains in efficiency and positive externalities are ultimately responsible for the potential positive impact of expansion of access on economic growth. There are good

theoretical reasons as well as reasonable empirical evidence demonstrating this positive impact. However, this argument only justifies government action towards the expansion of communications networks up to a certain level, but not to the level of universality. In this sense, it is a relatively weak foundation for *universal* access policies.

Second, I looked at universal access policies from the perspective of development as freedom. I argued that access to ICTs has a positive impact on the expansion of human freedom. The thrust of the argument was that universal access policies expand human functionings and capabilities on three levels: (i) by expanding the *communicative functionings and capabilities* of human beings both in both quantitative and qualitative senses; (ii) by expanding *basic constitutive functionings and capabilities* identified by the UNDP (e.g. to live a long and healthy life, to have access to knowledge, to have access to resources necessary for a decent standard of living); and (iii) by expanding important *instrumental functionings and capabilities* for the development process.

Thus, under the conception of development as freedom, the importance of universal access policies for development is not derived from their indirect impact on economic growth, but rather from their direct impact on human freedoms. Part II concluded by pointing out that the argument developed within the paradigm of mainstream development economics could actually be tied together with the argument developed from the freedom perspective, making a strong case for the design and implementation of universal access policies in developing countries.

Finally, Part III pointed out that the redistributive effects of universal access policies also play a relevant role in the quest for development. I argued that the two main paradigms discussed in the prior parts of this article considered reduction of inequality a piece of the

development puzzle. I discussed how a distributive policy on a micro level, such as the universal access policy, also fits the current agenda of ECLAC, a historically heterodox think tank. Part III closes with a suggestion that different paradigms of development capture the importance of universal access policies (and, for this matter, the importance of other policies towards the reduction of inequality) as redistributive tools for the development process.

Overall, development theory provides solid foundations for implementation of policies towards widespread access to ICTs. Governments in developing countries should definitely take these lessons into account when considering their broader policy strategies towards sustainable development.