



Sharing mobile phones in developing countries: Implications for the digital divide

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ABSTRACT

Current estimates of the digital divide in mobile phones between rich and poor countries are based on the ethnocentric assumption that in both regions the use of these products takes place through individual ownership. But while this assumption may be largely true in the former countries, it does not match the circumstances in the latter regions where a considerable amount of sharing is shown to take place (partly for cultural reasons). Using the available survey evidence and a simple arithmetic framework, I show that when sharing is taken into account, the divide entirely ceases to exist or is greatly reduced (though there are one or two exceptions to this general pattern). Improvements in data collection practice will tend, as I see it, to strengthen rather than cast doubt upon this novel finding. If so, questions arise as to the need for a gap analysis *per se*.

As defined by most international organizations, the digital divide in mobile phones is the ratio of subscribers in developed countries to subscribers in developing countries (I use the terms owners and subscribers synonymously¹). This definition however assumes that the only way in which benefits accrue to individuals is by individual ownership of mobile phones.² And while this may make sense in developed countries where ownership is indeed widespread, it does not make much sense in poor countries where benefits from use are more heavily derived by sharing of the technology. The problem here is created by the illegitimate transposition of an assumption from one set of circumstances to a highly different environment, a phenomenon described, among others, by Myrdal [5]. My purpose below is to examine the implications of this assumption for the digital divide in mobile phones between rich and poor countries. In particular, I will argue that current measures of this divide are quite heavily overstated, in some cases to the point where the divide disappears altogether. For this purpose I will rely mainly on household survey data that pertains to the middle of the past decade. The first part of the paper deals with the context of the digital divide and a description of the major socio-economic effects of mobile phones. The second part is concerned with the concepts and measures of sharing while the final part is concerned with empirical evidence. Both parts 2 and 3 are based on a distinction between two major types of sharing behavior. And both parts use a measure of mobile phones per 100 inhabitants.

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1. Introduction

The digital divide is meant to reflect the differential benefits of information in rich as opposed to poor countries. The divide, as noted above, is usually measured as the ratio of the stock of IT in the former countries divided by the stock in the latter. It is

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¹ This synonymity assumption is just a simplification. It need not always be true.

² A similar problem arises with the use of the Internet in developing countries. It is assumed that those who derive benefits from the technology have to actually use it. In reality however there are numerous ways in which poor communities gain benefits without use. I am thinking for example of broadcasting information from the Internet to those who own radios or via intermediaries with loudspeakers.

generally accepted that the digital gap is greater for the Internet than mobile phones. This is partly because the former is more demanding in terms of skills, affordability, infrastructure and so on and partly because it is the relatively poor countries that are most lacking in these features. In some ways the digital divide is similar to other technological gaps between rich and poor countries, yet, at the same time information technology is different from other products imported from advanced countries because it can be described as “general purpose” (meaning, among other things, that it involves changes that transform household life as well as the ways in which firms conduct business).

The digital divide is also closely related in the literature to so called “digital readiness indicators” which cover a broad range of variables, such as skills, the regulatory and legal environment and so on. In particular the divide is included as one additive component of these indicators such as the “network readiness index” (NRI) of the World Economic Forum. The NRI is defined as ‘the degree of preparation of a nation or community to participate in and benefit from ICT developments’ [1]. The idea is that the digital divide in phones contributes to the overall readiness index, thereby promoting growth and poverty reduction (since the two are known to be closely related). However, methodological doubts arise as to whether the mobile gap can be used in this way as an input to and an outcome of the process. James [2] for example has argued that the gap should be regarded as an outcome of all the other inputs used in digital network indexes.

The literature also includes an extensive treatment of the effects of the divide in mobile phones especially since this technology is growing so fast in much of the developing world as shown for example in annual reports of the International Telecommunications Union (ITU). My goal here is not to summarize all the research on impacts but rather to deal only with some of the most prominent studies. From a sociological point of view the relationship between mobile phone and social capital is one of the most important. According to many people for example the mobile phone can be thought of as an additional means of communication which is able to promote existing social relationships and to follow patterns of civic engagement. Goodman [3] for example has studied the effects of mobiles on the social capital in South Africa and Tanzania. What he found was that ‘mobiles were facilitating participation in social networks, helping to maintain both strong and weak links, including participation in community group activity’ [3]. From an economics point of view, the main causality runs from mobile phones to higher productivity to increased growth and poverty reduction. Waverman et al find that indeed mobile telephony has a positive and significant impact on growth and *this impact may be twice as large in developing countries compared to developed countries...* The growth dividend is far larger because here mobiles provide, by and large, the main communications networks; hence they supplant the information gathering role of fixed-line systems’ [4, emphasis in original].

2. Concepts, explanations and measures of sharing

a) The culture of sharing

Sharing of goods and services is not an alien concept in developing countries. On the contrary, it seems to be deeply rooted in the culture of many such countries. Sharing information technology in general and mobile phones in particular can thus be viewed as a new application of a pre-existing trait that can be found on at least two different continents. In Asia, for example, ‘the Philippines have a culture in which household members generally share resources’ [6]. And on that continent in general, ‘shared mobile phones ... are used within a culture of sharing. ... Material resources are often shared at the level of household and neighborhood. ... Domestic communication technologies are seen not only as enablers but support devices for family interaction and co-ordination. ... Asian cultures privilege the family over the individual. Though, there are several social units competing as identify markers, the individual is not seen as the primary unit of social organization’ [6]. Or again, on a different continent, ‘Although a mobile phone may nominally belong to a single person, in some African countries it is regarded as the property of the community, because there is a culture of sharing the tools of communication’ [7].

b) Underdevelopment and sharing

There is also reason to think that sharing of mobile phones may be a function of underdevelopment itself. For example, there is more of a need to freely share mobile phones in developing as opposed to developed countries. On the one hand, the size of household tends to be greater in the former than in the latter regions. Moreover, family size tends to be greater within rural than urban areas, reflecting partly the lower incomes and more traditional values in these areas. In developed countries household size has fallen from around 5.5 to 2.6 during the past 100 years or so. By the turn of the century, however, there were still many regions in the developing world with an average of twice that amount [8].³ On the other hand, a large family size usually tends to be correlated with higher poverty, thereby making it more difficult for family members to buy their own phones.

A negative relationship between the degree of sharing and income has been identified at the country level by Stork [9] in his field study of Namibia. As he puts it, “The percentage of respondents that share their mobiles with family, friends or neighbors is distinguished by household income. One can clearly observe a trend of higher income households tending to share their mobiles less, which can also be attributed to more mobiles being owned per household” [9]. Stork also observes ‘that respondents living in rural areas are more willing to share their mobiles with others than respondents in major urban or other urban areas ... Interestingly, only 2.77% of respondents that share their mobile phones charge friends, family or neighbors a fee for the use of their cell phones’ [9].

The same logic that applies to the relationships at the country level can probably be extended to the cross-country level as well, which would then take the form shown in Fig. 1.

³ See below the household size in Ethiopia.

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