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URBANIZATION IN SUB-SAHARAN AFRICA AND THE CHALLENGE OF ACCESS TO BASIC SERVICES

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Abstract The majority of the urban population of Sub-Saharan Africa lives in slums where access to basic services, such as water, sanitation, or electricity is low. There is a growing body of evidence showing that access to these basic services has significant effect on the well-being of the poor. As the progress to universal access is still very slow, this essay contributes to the understanding of the persistence of the situation by reviewing the recent empirical evidence on both supply and demand issues related to the provision of basic infrastructure in urban areas of developing countries.

Keywords: Public goods, developing countries, slums, market failures, poverty

1. INTRODUCTION

The urban population in Sub-Saharan Africa has been growing at a very fast pace over the last 20 years [UN-Habitat (2016)] with an important concentration on peripheral zones of cities where many households live in informal settlements (slums). This rapid growth can be explained in part by rural–urban migration. However, recent evidence also shows that internal urban population growth is also an important determinant [Jedwab et al. (2015)]. Slum areas are generally characterized by high density of population, insecure land tenure, poor access to basic amenities, and higher poverty rates than the population living in formal urban areas [Marx et al. (2013)]. Recent estimates suggest that 881 million of the world population were living in slums in 2014 and almost 201 million in Sub Saharan Africa [UN Habitat (2016)].

The growth of populations living in slums where the access to basic infrastructure is still very low poses a serious challenge for the development of these regions. There are still many unanswered questions on the reasons why this situation persists. Duflo et al. (2012) identifies open issues related to the low access to water, sanitation, and hygiene in developing countries. The objective of this short essay is to contribute to the understanding of the impact and the persistence of this situation by bringing together recent empirical evidence on the role of infrastructure and barriers to access in poor countries.

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There are a number of recent works showing that access to basic services, such as electricity, water, and sanitation can have important positive impacts on economic and health outcomes. The current situation of low access may persist because the investments required to provide basic services are generally very large compared to the budget capabilities of developing economies. In addition, the market for basic infrastructures may be characterized by important supply and demand side failures.

2. GROWTH OF SLUMS IN SUB-SAHARAN AFRICA AND THE SLOW PROGRESS OF ACCESS TO BASIC INFRASTRUCTURE

The proportion of people living in slums has increased significantly over the past two decades, from 689 million in 1990 to 881 million in 2014 [UN Habitat (2016)] even if their share over the total urban population has slightly decreased, from 45% in 1990 to 30% in 2014 [UN-Habitat (2016)]. In Sub-Saharan Africa, 55% of the urban population still lived in slums in 2014 [UN-Habitat (2016)]. Access of basic services, such as water and sanitation, electricity, access to safe housing, and the upgrading of slums are on the list of the Sustainable Development Goals (SDG),[1] which have built on the Millennium Development Goals (MDG[2]) active until 2015. Some progress has been made on the access to improved water,[3] which has increased up to 87% for urban dwellers in 2015 in Sub-Saharan Africa [UN Habitat (2016)] even though it did not reach the MDG target. Access to improved sanitation[4] is, however, very low reaching only 40% of the urban population in Sub-Saharan Africa [UN Habitat (2016)]. Only 63% of the urban population had access to electricity is in Sub-Saharan Africa in 2014 [International Energy Agency (2016)].

The situation is obviously more acute in slums, as their creation and expansion generally occurred at the boundary of cities on insecure land (squatting) without pre-existing infrastructure. Although there is no data aggregated over all existing slums in the world, some information is regularly collected through various socio-economic surveys. Marx et al. (2013) provides a very insightful illustration of the situation of several slums in different regions. In most slums, the majority of dwellers do not have access to private latrines (from 46% in Hyderabad, India to 75% in Mumbai, India), to private water (92% in Kibera, Kenya) and have no system of garbage collection (74% in Kibera). Duflo and Banerjee (2007) report similar figures for the urban poor[5](living under one and two dollars a day) in 11 countries. Access to water, sanitation, and electricity is also limited but with some heterogeneity across countries.

3. CONSEQUENCES OF THE LACK OF ACCESS TO BASIC INFRASTRUCTURE

Evaluating the contribution of infrastructure to development is challenging. There is a large empirical literature trying to analyze the impact on growth at the macro-

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level [see Straub (2011) for a review]. However, most papers face serious identification challenges as the placement of infrastructure is generally endogenous and country-level analysis provide little flexibility to tackle the problem.

Yet there is rising evidence, at the micro-level, on the effects of access to basic services on health, well-being, and economic outcomes. A large body of research shows that poor access to water, sanitation, and sanitation practices have important negative impacts on health [Prüss-Ustün et al. (2014)]. A systematic review by Wolf et al. (2014) shows that the improvement of water and sanitation access has large effects on the reduction of diarrheal diseases. In urban settings, a series of papers [Merrick (1985), Galiani et al. (2005), Gamper-Rabindran et al. (2010), Kosek (2014)] show that policies improving access to water have positive effects on health, especially for children. Devoto et al. (2012) show that access to piped water also has important impacts on life satisfaction. However, in some cases, programs improving access to water and sanitation do not translate into better health outcomes because households do not shift away from poor hygiene practices or old habits [Barnard et al. (2013)]. Recent works on the improvement of access to electricity in urban areas of Brazil show positive effects on employment, income, and education [Lipscomb et al. (2013)]. Rud (2012), using historical data from India, shows that electrification is associated with an increase of manufacturing activity. At the household level, Dinkelman (2011) demonstrates in South Africa (but in rural areas) that access to electricity allows women to shift time from home production to investing in micro-enterprises. Looking at a different kind of infrastructure, Gonzalez-Navarro and Quintana-Domeque (2016) show that paving streets in peri-urban areas of Mexico (Acayucan) has large effects on wealth through the increase of the value of properties.

4. IDENTIFYING BARRIERS TO ACCESS

If this evidence, coming from a diverse range of settings and policies, underlines the significant benefits of basic services on well-being, it provides limited guidance on how to overcome the barriers to access.

One of the most straightforward solutions for improving access to basic amenities would be to build large-scale infrastructure (water pipes, sewer lines, and electricity grid) as is the case in all cities from industrialized countries. These infrastructures have, however, in common the requirement of large-scale investments that may go well beyond the financial capabilities of developing economies. Estimates of the financing gap compared to what is currently spent can be as high as US$ 600 billion [Estache et al. (2015)], and it is not clear who should finance the development of these infrastructures, the public sector, private companies, or public private partnerships [Estache et al. (2015)]. Because of the large costs associated with these investments, it might be the case that "micro-solutions" [Duflo et al. (2012)] are preferable in the short run to make a difference in the lives of the poor.

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The provision of these basic goods is associated with a number of market failures, both on the supply and the demand side with generally inadequate policy action to overcome them.[6]

First of all, the nature of the goods is by definition ambiguous. For example, sanitation shares both the features of a private and public good. Households can enjoy the private returns of improved sanitation (more comfort and dignity) but the health benefits will largely depend on the behavior of other households in the community. The occurrence of diseases will decrease only if a sufficient proportion of population adopts improved sanitation. Externalities are particularly important in high-density areas, such as slums. This might be true for other basic goods, such as access to water, garbage collection, and to a lesser extent for electricity. The question remains on how such public goods can be provided given collective action problems. Besley and Ghatak (2003) show that collection action is more likely to emerge in places where there is good information, strong social ties, and repeated interactions. Duflo et al. (2015) provide an interesting illustration in rural areas of India, where they evaluate the effect of a program which has the objective of providing universal access to water and sanitation at the village level. Universal access limits the externality problem but requires collective participation. The program was successful in achieving 100% participation through large community mobilization and impact on health was very significant. It is not clear, however, how to translate this system to poor urban areas. Spurring collective action might be more challenging when there is a large heterogeneity in terms of income and ethnicity [Dafe (2009)].

Given the large-scale investments required to develop the infrastructure, the degree of competition in the market can be limited. For example, the providers of water or electricity are generally operating as monopolies [Scott (2013)]. If in addition, there is a failure from the governments to regulate the market, there can be an equilibrium in which the poorest segments are not served, where services are not well maintained or that contracts are not enforced [Scott (2013)]. In cases where large providers are not investing in these areas, micro-local solutions in place (for example, on-site sanitation) can be also subject to market failures with problems of incomplete markets [Trémolet (2012)] or collusion [Lipscomb et al. (2017)].

Moreover, poor competition may amplify the potential political economy issues in the provision of these public goods. The decision to allocate goods can be made on the basis of ethnicity [Miguel and Gugerty (2005), Burgess et al. (2015)], preference of the leader [Chattopadhyay and Duflo (2004)], regional favoritism [Hodler and Raschky (2014)]. For instance, Brown and Mobarak (2009) show, using cross-country evidence, that the distribution of electricity is more favorable to residential users (representing the majority of voters) than industry plants when there is political accountability.

There are also a number of demand problems that may affect the access to infrastructures. Households in poor urban areas may have a low willingness to pay for the adoption of improved technologies. The low uptake could be simply the

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response to the inadequate supply, but there are also a number of market failures on the demand side. Low demand could be related to the nature of the good, a household concerned about health benefits might not adopt unless a sufficient number of neighbors do so. Moreover, a key characteristic of informal settlements is the lack of effective (formal) property rights. Although there can be a "continuum in land tenure rights" [Durand-Lasserve and Selod (2007)], which makes the issue more or less severe, the data available suggests that the vast majority of inhabitants of slums do not have proper land title.[7] This constitutes an important market failure that may have strong consequences on the investment on house improvement and basic infrastructure. Home owners may have limited incentives to invest in their plots if they are at high risk of losing their property and the returns of their investment in the future. There are several papers looking at the effects of property rights on economic outcomes, such as access to credit, labor supply, investment, etc. ([Besley (1995), Field (2007)] among others) but relatively little empirical evidence on the investment on house improvement for urban households. Field (2005) evaluates the effect of a very large titling program in urban Peru targeted at urban squatters and shows important effects on house improvements (renovation or addition). Galiani and Schargrodsky (2010) find similar results in Buenos Aires where they show also positive effects on the level of children education and a reduction in the household size (but no effect on access to credit). Moreover, titling decisions in slums areas might also be influenced by political economy issues [Dafe (2009)].

Low willingness to pay may also be driven by other market failures on the demand side, such as credit constraints, information asymmetries, a limited understanding of the benefits associated with the goods, time inconsistencies, etc. There is an important body of evidence in health and development economics of the relatively high-price elasticity for preventative health products, such as bednets, water purification (chlore), or vaccines [Dupas (2011) for a review], which all share the characteristic of being relatively cheap (even when they are charged without subsidies). Dupas (2011) suggests that poor households may lack information about the returns to public health and that it can be further amplified when households have low-education levels. Important time inconsistencies [Laibson (1997)] might also be at stake, households highly valuing present costs over future benefits. In comparison with cheap preventative health products, infrastructures needed in order to access private water, proper sanitation, or electricity involve much larger upfront costs for households (and smaller but regular payments coming from the water or electricity bill). Poor households may not have the capacity to pay for these large costs in the absence of well-functioning credit markets. There is only limited evidence on willingness to pay for these types of products in urban settings. Devoto et al. (2012) show that alleviating the financial constraint with credit can have very large effects (a 60 percentage point increase) on take-up of piped water in rural Morocco (although the experiment also involved providing administrative assistance in conjunction with credit). In Bangladesh (Dhaka), Guiteras et al. (2016) find that providing the option of small payments over time

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(through loans or saving options) versus lump-sum payment for ceramic water filters (purifying the water) increases significantly the willingness to pay. Those results are consistent with both the existence of binding credit constraints and time preferences (present bias or hyperbolic discounting). Jack and Smith (2015) find similar results for electricity bills payment in urban South Africa, where poorest segments of the population prefer small and regular payments (made possible with pre-paid electricity meters) than monthly bills, suggesting also problems of liquidity constraints and/or time inconsistencies. In dense rural areas of Bangladesh, Guiteras et al. (2015) test, among other treatments, the effect of an information and motivation campaign at the community level and the provision of subsidies (a 75% discount) on the ownership of latrines. The campaign alone did not affect take-up but the combination of information and subsidies increased ownership by 20 percentage point. The design (a cluster randomized trial) was constructed to measure potential spillovers by randomly varying the proportion of households receiving the subsidy within the clusters. Results show that take-up increased also (but by 8 percentage points on average) for the non-subsidized households, suggesting information spillovers (of the type that were probably not contained in the campaign) or changes in social norms.

Finally, coordination issues between landlords and tenants can also affect demand. They may disagree on the utility associated with improving access to basic infrastructures and landlords might not be aware about tenants' willingness to pay. This is all the more a problem in areas where the majority of dwellers are tenants. Marx et al. (2013) show that in Kibera (Kenya), 92% of slum dwellers are tenants and that rent increases represent one of the most frequent causes of disputes between landlords and tenants.

5. CONCLUSION

With the sustained increase of the population living in poor urban informal settlements in Sub-Saharan Africa, the lack of adequate infrastructure will continue to be a major bottleneck toward reducing poverty. If good health and education infrastructures are also key factors of economic development, there is a growing body of evidence showing that access to improved water, proper sanitation, or electricity matters for health and economic outcomes. The under provision of these services is likely to persist given the significant number of potential failures both on the supply and demand side. Governments of developing countries face important budget constraints that prevent from undertaking large-scale investments, and at the same time there is evidence that poor households may have a low willingness to pay for these basic infrastructures. Findings from recent research on the demand for preventative health products suggest very high price elasticities. Although basic infrastructures have different attributes than health products, it is reasonable to expect that the willingness to pay for improved access to basic goods is relatively modest. Product innovations with cheaper on-site solutions might be key to improving access in the short run. There is also room for policy action to

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improve the functioning of markets (with better land security, information and/or credit) or to subsidize access because of the important externalities associated with the take-up of these goods.

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NOTES

1 Among other goals related to poverty, health, education, food security, etc.

2 The MDGs were active until 2015.

3 Improved access to water means access to a source that "adequately protects the source from outside contamination" [UNICEF and WHO, 2015].

4 Improved sanitation means "sanitation facility that hygienically separates human excreta from human contact" [UNICEF and WHO, 2015].

5 Whether they live in informal settlements is however not explicit.

6 See Collier (2017) in this issue for a detailed discussion of the political economy considerations associated with the role of poor access to infrastructure in African urban transition.

7 The expected impacts of the strengthening of property rights depend on the degree of security of pre-existing tenure. Informal property rights can be sometimes secure and play the role of formal title [Lanjouw and Levi (2002)].

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