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Urban land markets and city development: Sub-Saharan Africa

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Urban land markets and city development: Sub-Saharan Africa

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Abstract

Rapidly growing cities in sub-Saharan Africa face immense population pressures. Weak institutions and outdated regulations inherited from the colonial era threaten to stifle their progress. This paper examines the institutions underlying the operation of urban land markets in Sub-Saharan Africa, focusing on property rights, the evolution of cities and their spatial layout, planning, and property taxes. Countries typically have a dual system of property rights, with in theory formal rights in cities, communal tenure in rural areas, and a transition between the two systems at growing city boundaries. However, large portions of cities operate outside these systems under informal rights. Using case studies and within city variation, we review the historical evolution of these systems in a number of African cities. We argue that cities lacking formal property rights tend to build lower and less intensively, often with slums persisting near the city center, where there is much higher value alternative use. We further explore the relationship between lack of owner occupancy and wealth inequality, as partially affected by the transition to private property rights. Next, we discuss the critical role of planning. Francophone countries for instance historically imposed comprehensive planning on urban land markets compared to Anglophone counterparts. This resulted in greater contiguity and density of land use, gridded urban layouts, and less leapfrogging in new developments. Where planning is weak, special initiatives such as sites and services may impose planning on certain greenfield neighbourhoods, with benefits accruing in the future. The paper then examines problems in property tax enforcement and collection, discussing reforms to improve collections. The paper concludes with a discussion of policy considerations and a research agenda.

Keywords: Land markets, urban planning, sub-Saharan Africa, urban development, colonialism

JEL Codes: H, H26, O17, O18, P48, R1, R3

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1 Introduction

Africa is experiencing rapid urban population growth, with the UN showing an annual growth rate of 3.6% from 1990-2018 and a projected annual growth rate of 3.1% from 2018-2050, while regions such as Asia and Latin America have projected urban population growth rates of just 1.3 and 0.8% respectively (United Nations, 2018; World Bank, 2019). Currently, 62% of the urban population in sub-Saharan Africa lives in slums and at population densities that are beyond anything seen in the developed world (Henderson and Turner, 2020; Racelma, 2012). With the health, livelihoods, and security of Africa's urban residents at risk, the region's rapid population growth demands an enormous expansion of infrastructure, housing, and services to ensure cities' sustainability and livability.

The literature demonstrates that weak institutions and governance hamper cities' abilities to meet these challenges. Among the institutions and policies key to the operation of cities are those involving urban land markets, specifically property rights that govern such markets, the institutions that support their planning and regulation, and those that support property tax revenue collection and, in turn, cities' fiscal capacities. For countries in Sub-Saharan Africa, which generally have only been independent for 50 to 60 years, the literature argues weak institutions arise from colonialism, as well as low incomes (e.g. Acemoglu et al., 2001; Banerjee and Iyer, 2005; Guiso et al., 2016).

When researchers typically study land markets in developed countries, they work in a context where almost all land and property is governed by well-defined and non-corruptible private ownership rights, with freeholds and/or leaseholds registered in transparent and accessible government records. All sales and transfers are recorded formally, and such recordings and transfers can be almost instantaneous and done at very low cost. All contracts are enforceable in court, with consumer protections against undue evictions and disputes can be settled in court in a reasonable amount of time. However, in examining land markets in Africa, the challenge is that these various presumptions about the operation of institutions in developed markets simply do not hold, even approximately, in most of sub-Saharan Africa.

Unlike their developed counterparts, much of urban land in sub-Saharan Africa typically involves a dual system: there is both a small colonial portion which inherited more formal rights, as well as a vast portion governed by possessory/use rights initially granted by communal or tribal customary law. In Section 2, we will examine key aspects of the evolution of private property rights in sub-Saharan Africa starting with this dual system. In considering the rich and varied nature of this development across the region, we then look in depth at specific cities. By granting individual security of ownership, formal private property rights mitigate risk of expropriation, and allow the property to be used as legal collateral. Such rights appear to have a strong impact on incentives to invest, and thus the resulting intensity of investment in urban buildings. Given most cities in sub-Saharan Africa are built low and are covered by slums with make-shift housing (Lall et al., 2017), property rights are critical to understanding the resulting built characteristics of these cities.

There is a move to increase the extent of private property rights in many countries, but such moves can be corrupted and high-jacked. A result can be increased wealth inequality.

Such inequality is already high. As shown in section 2.3, 62% of the largest cities in 21 countries in sub-Saharan Africa have owner-occupancy rates under 40%, while none of the 24 OECD countries have rates so low. The implication is that most urban residents in Africa rent from a small class of land owners. As property values rise in African cities with growth, the gains in property value go to this small class of owners.

Studies of developed countries have also taught us that urban land markets are fundamentally highly regulated and planned, even in the most free-market developed country. In developed country cities, today and historically, public sector land uses such as roads, sidewalks, parks, and government buildings and grounds account for up to 50% of urban land, with transport (rail and road) accounting for the largest part. For example, even in the early 1940s before the automobile was so prevalent, 35-50% of developed land was public in a sample of eight North American cities over 250,000 at the time (American Society of Planning Officials, 1950). This public use, especially the planned and executed lay-out of roads and highways within cities, strongly impacts private urban land use, density, and where people live and work in the city (Meyer et al. 1965, Baum-Snow 2007 on the USA, Baum-Snow et al. 2017 on China). The layout determines which economic users outbid one another to be near the city centre or major transport corridors and ring roads, and which neighbourhoods are desirable. That is, public decisions drive private use in terms of location and configuration, and intensity of use. And private use is also formally governed by binding planning and land use regulations that can dictate specific uses, lots sizes, building footprints, intensity of use like floor to area ratios [FAR], and the like. However, the weak institutional settings often found in Africa generally extend to poorly done and enforced planning and related regulation.

Given that planning and regulation are often the purview of non-economists, the economics literature on these topics in Africa and, even more generally, is fairly narrow in scope. It covers key dimensions of excessive on-the-books but non-enforced land use regulations in Africa, colonial era planning and its imprint on landscapes today, and international agency policy interventions. Economists analyze in more detail a related planning and policy issue: the impact of investment and location of roads and other forms of public transport infrastructure. In Section 3, we review the research that has been done in relation to urban planning, and likewise investigate these gaps in the literature. Paying attention to the immense role that slums play in Africa's urban landscapes, we further discuss another subset of critical questions. Do so many people live in slums because of institutional deficiencies and/or poorly designed regulation? Or is there a role for slums in poor countries, even if these institutional issues did not exist; and how would that role play out as cities develop? On the institutional side, one critical question is whether the persistent existence of older slums on high value land near the city centre inhibits the development of the city overall. Finally, given the international public policy focus on slum upgrading programs, what are the impacts of such programs in the short and long term?

Next, insecure property rights drive the inability to enforce property tax collection, where the property tax is a major local source of revenue for cities to finance infrastructure and public goods. In most countries in the world, land and property are generally subject to some form of property taxation. In OECD countries property tax revenue in 2015 was 2.65% of GDP; yet in sub-Saharan Africa, it was just 0.38%. Countries across the region tend to have infant property tax systems. There is the potential for property taxes to be

a key source of local independent revenue for cities starved of public funds, but collection rates and assessment coverage of existing buildings are very low. Such taxes can play an important role in financing city services and infrastructure, and under many circumstances are viewed as benefit taxes that can win political support. However enforcing collection - via for example, threat of seizure and auction of tax delinquent properties or lockouts of usage for delinquent properties - arguably only works under clear property rights regimes. There are political economy issues in trying to seize buildings that are tax delinquent or in persuading the population of benefits of widespread collection. However, as a start, enforcement via seizure necessitates a distinct official owner of the property as well as mechanisms to ensure against improper seizure.

The low rate of property tax collection means that when property values rise with city growth, these capital gains as noted above go to a small class of land owners. Without adequate taxation, these capital gains are not available to fund needed public service expansion.

This paper thus discusses the institutional structures underpinning the operation of urban land markets in Sub-Saharan Africa, and the implied consequences thereof. The paper proceeds as follows. Section 2 describes the dynamic process of building of cities and how property rights affect the incentives to invest intensively in land, using Nairobi and Dar es Salaam as contrasting examples. It describes the institutions governing urban land markets and their historical evolution. It examines wealth inequality and owner-occupancy, as partially affected by the transition to private property rights. Section 3 gives a brief review of the role of planning, regulation and transport in African cities, based on the literature. It looks at neighbourhood planning initiatives, with World Bank sites and services programs being a precursor. Section 3 also examines the role of slums, the impact of older slums on urban development, and slum improvement programs. Section 4 examines property taxation. Section 5 concludes with a discussion of policy and research issues and needs.

2 Property rights and the building of cities

Urban land in much of Sub-Saharan Africa typically starts under a dual system of property rights: a small colonial portion which inherited more formal rights, and a vast portion where land is governed by more informal customs, often with conflicted rights. For the latter, typically land started under communal or tribal rights and families were granted possessory/use rights in various forms and degrees of recognition under the formal legal system. The dual system in cities has evolved in many cases, with conversion of some land under informal rights to more formal rights and strengthening of possessory rights. In this section we start by exploring the role of private property rights in increasing intensity of investment, illustrating with two detailed examples. We then discuss the evolution of property rights in sub-Saharan Africa since the pre-colonial era, illustrating with a number of country examples. Finally we discuss possible negative effects of certain policy efforts to ostensibly increase private ownership of land, which may lead to increased wealth inequality.

2.1 Role of private property rights

Economists argue that formal property rights are essential to incentivize intense investments in property in situations where cities are growing and local land prices are rising rapidly, especially near the downtown (De Soto, 2000). Why? With rising land prices, the economic incentive is to invest heavily with capital to conserve on scarce and expensive land. The problem is that the risk of expropriation on informal land rises as investment, and hence the value of what could be expropriated, rises. To encourage intense market driven investment, the risk of expropriation must be sufficiently mitigated, which in turn can be achieved only with transparent and relatively uncorrupted land markets. Moreover, to use land as collateral, for a construction loan for example, in most contexts requires the borrower to clearly offer up the property as collateral and risk potential foreclosure.¹ This requires evidence of formal, uncontested ownership. Similarly, purchasing property insurance may require formal proof of ownership and clarity as to whom the claimant would be.

What is the evidence on the importance of formal rights in promoting investment? Economists have conducted well-known micro-level studies on the impacts of offering private property rights to informal owner occupants. Two Latin American studies, one by Galiani and Schargrodsky (2010) in Argentina and one by Field (2005) in Peru, look at situations in which people had informal rights as “owner occupants” and then received formal titles. Both papers have a “natural experiment” where the timing and location of granting of titles was pseudo-randomized by either the haphazard implementation scheme (Peru) or settling of court cases at random times (Argentina). In both cases the authors find significant increases in investment in the subject properties compared to those yet to be or never treated. A key finding in Galiani and Schargrodsky (2010) is the lack of people using titles as a point of access to credit markets, despite now having viable collateral. However it is important to note that only the short terms effects of these programs were studied.

Of much greater interest are longer term effects, where land uses may change and there may be reconstruction. Varley (2017) in fieldwork assesses areas in Mexico City which were titled, many some decades ago. She argues that the result was enormous jumps in intensity of investment. The privatization of property in urban China which started in the early 1990s with formal leaseholds has been viewed as a prerequisite to the enormous private investments in property which followed and transformed Chinese cities (e.g. Zhu, 2019). Unfortunately, these studies while very suggestive do not accomplish the difficult task of establishing clear causality.

To properly investigate the long-term effects of property rights regimes on intensity of investment and changes in land use requires two types of data. First are data on regimes and changes in regimes, based on cadastre records, registration of titles, and mapping exercises. There are individual studies that have collected these data for illustrative cities, but collecting such data requires extensive fieldwork. Second are data on intensity

¹In markets with weak institutions such as Dar es Salaam, informal ownership may in principle allow a family to get bank loans leveraging their property. However, as discussed below the loans are just small home improvement or business loans and not mortgage home purchase loans and even these small loans are rare and costly for a bank to process.

of investment.

With such data, ideally one would have a set of cities where there are differently timed switches to formal rights, comparing the before and after for some years, and potentially also having a control group of never switcher cities. For treatment outcomes, one would presumably observe a differential in investment growth, measured by increased building volume per unit land for instance; likewise, height differentials in the treatment group will typically reflect changes in intensity of investment (Henderson et al., 2020). However, at the moment, no publicly available data exist that cover a large number of cities, and that can be used to do the 3-D modelling needed to calculate building volume or heights per unit land area. Such data do not generally exist in a cross section, let alone over time.

To assess volume requires data on building footprints and heights. Footprints are obtained by processing high resolution satellite images, aerial photos, or drone images. For building heights, Lidar data collected aurally are accurate but require expensive city-by-city collections. An alternative is to use repeated stereo pairings of satellite or aerial images to infer an estimate of height.² There are efforts to create such a dataset for significant parts of the world including Africa that goes as far back as the early 2000s, supported by the World Bank, Technology Canada, and the Gates foundation under the auspices of a Canadian firm, Ecopia. But for now, one must go city-by-city to commission flights and drones to collect images and readings.

2.1.1 Case Study of role of private ownership

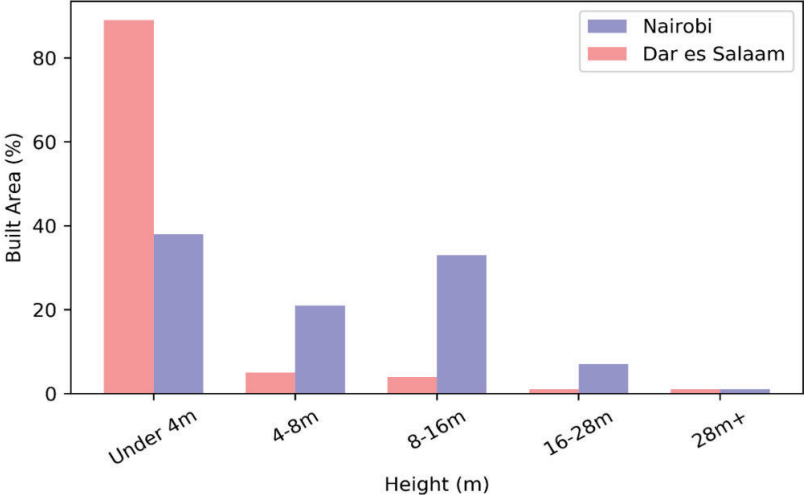
Absent work based on multi-city data sets, we discuss a small case study comparing Nairobi and Dar es Salaam. In Nairobi, 90% of land not in public use (i.e., excluding roads, stadiums, airfields, universities, and the like) in principle is under private ownership, and has been for about 2 decades (Henderson et al., 2020). In Dar es Salaam, despite the push to formalize, by 2018 only about 20% of plots had been formally surveyed as a prerequisite to titling (Kusiluka and Chiwambo, 2018, 2019). The suspicion is that only a modest fraction of those surveyed have actually gotten titles (see Section 2.1.3). Thus, one is a city that is highly privatized, and the other a city that is not.

For Nairobi, Henderson et al. (2020) use 3-D modelling data, based on aerial photos and Lidar data by Ramani Geosystems. The authors calculate building heights and average heights for grid squares. For Dar es Salaam, aerial images were used to map footprints and an NGO, Ramani Huria, had teams of surveyors who counted building heights (floors) for most of the city. Figure 1a shows the distribution of buildings by height for the two cities and Figure 1b maps the cities by average height of building footprints within 150m by 150m grid squares. In Figure 1a, whereas over 85% of buildings in Dar are 1-storey, in Nairobi less than 40% of buildings fall under this threshold. The visual image in Figure 1b is telling: Dar is flat except mostly for a few grid squares near the city centre, while Nairobi has considerable height in many places and great height at the centre. Is this due to differences in property rights regimes, as opposed to climate, culture, or Dar

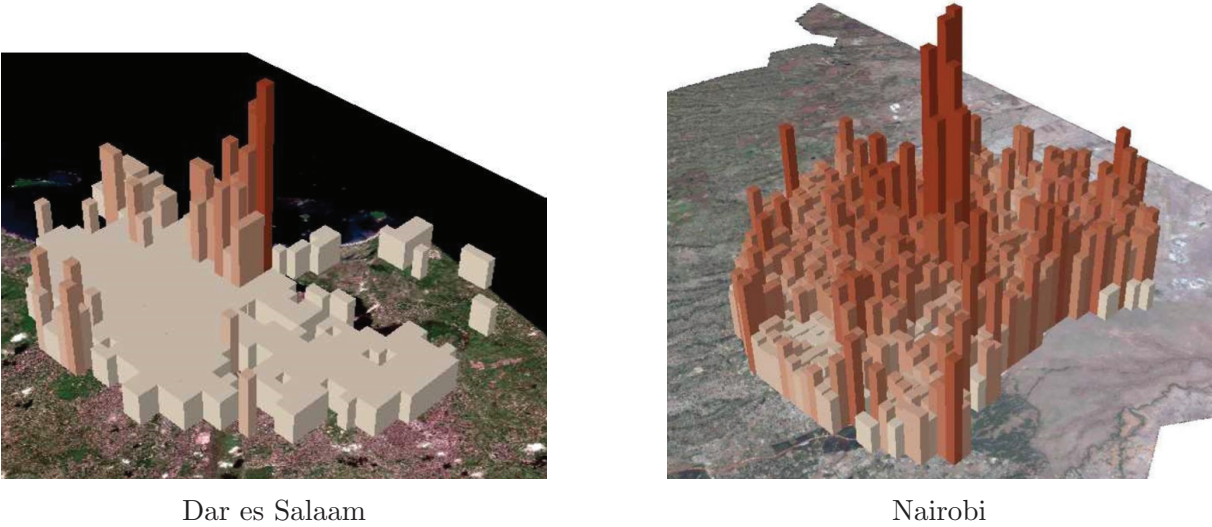
²A randomly created stereo pairing based on minor changes in satellite routes over days and months is not very accurate; but having 100 such pairings and picking the median estimated height value is more accurate.

having somewhat lower incomes? To answer that question accurately would require a large set of cities such that researchers could compare and link heights to property rights regimes, a massive data collection issue. That said, Figure 1 is suggestive.

Figure 1: Building heights in Nairobi versus Dar es Salaam



(a) Graph of height distribution



(b) Mapping of heights³

2.1.2 Within city evaluations of effects of private rights

While collecting data on building volumes, regimes, and regime changes over time for a large number of African cities is daunting, within-city analysis may be feasible. Within

³Authors' data

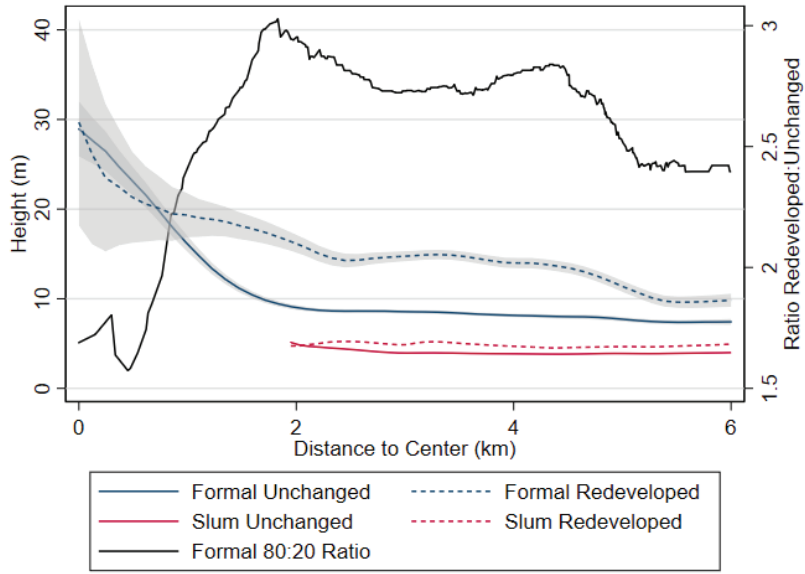
a city, over a long term, one could compare development before and after areas that are given private rights, as well as relative to development of areas without private rights and adjacent to these treated areas.⁴ The idea is to look over fairly long periods of times and extend the work beyond just slums areas. We know of no available data sets to do this, but they could be constructed, for example for Dar es Salaam.

However, there is suggestive overtime evidence comparing slums and non-slum areas in individual cities. For example, Henderson et al. (2020) for Nairobi show the change in height of buildings in the slum sector versus formal sectors from 2003 to 2015. In Figure 2a, we show this for the core part of the city out to 6kms from the centre. Inside 6 kms, all slum buildings are on “government” owned land that is “illegally” occupied and rented out, while formal sector buildings are on private land. The grey and red solid lines show the average height by 150mx150m grid square at different distances from the city centre for buildings that are unchanged from 2003 in respectively the formal and slum sectors. The corresponding dashed lines show the height of buildings that are redeveloped from 2003 to 2015. The figure shows that in slums there is no difference in heights between new and old buildings. In the formal sector beyond the highly constrained historical centre (out to 1km), redeveloped buildings are built significantly higher (the shaded parts around lines are error bands). The black line compares the inferred heights of the most recent redeveloped buildings in the 2003-2015 era to those in the stock about to be torn down.⁵ The ratio of heights is near 3, suggesting an almost tripling of height when a building is torn down and replaced with a new structure, in the rapidly growing city where real land and housing prices are rising, as incomes rise and population increases by about 50% every 10 years.

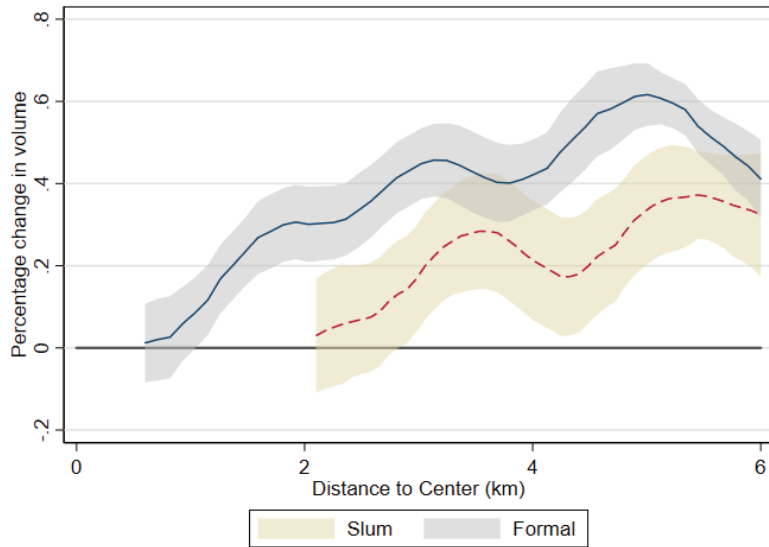
⁴Ideally one would look at the differential increase in volume in border areas before and after they are granted titles on one side of the border, versus those that are not on the other side. In looking at borders, one might want to buffer to rule out effects of local spatial spillovers between adjacent buildings on one side of the border versus the other. There are other issues of endogeneity of granting of rights and what type of treatment effects are being uncovered.

⁵To avoid outliers, for the former the authors pick the 80th percentile in height to get more recent buildings, while for the latter they pick the 20th percentile to get shorter building likely to be older and about to be torn down.

Figure 2: Changes in slums versus formal sector⁶



(a) Height differences and changes



(b) Volumes

In Figure 2b we turn to the corresponding percent volume changes (where volume is building footprint multiplied by average height overall for the building). The percentage increase in volume in the formal sector is much greater than in the slum sector, holding

⁶Authors' data

the areas designated for each fixed. We note that slums no longer exist on the extremely high value land within 2 km of the city centre, and that base volumes in the two sectors at any location are very similar. There are a lot of issues about comparing slum and formal sectors which we will discuss in the next section. However, Figure 2 suggests much more intensive flow investment in the formal sector with secure rights, than the slum sector without.

2.1.3 Conceptualizing investment in cities, an in-depth look

Buildings are thought to make up about two thirds of the private capital stock of cities (World Bank, 2006). Urbanization likewise involves a reallocation of much of a nation's capital stock from rural areas to constructing buildings in rapidly growing cities, not to mention the commensurate change in allocations of public capital such as roads. This process is dynamic. Formal sector buildings are generally non-malleable and last for decades. Land prices in cities vary enormously within cities as we move away from their peak at the city centre and towards the city outskirts; prices also rise in real terms throughout the city, as a city grows. As we saw in Figure 2, intensity of land use is highest near the city centre where land is scarce and highly priced; building volumes furthermore grow over time in response to rising land and housing prices.

To conceptualize this, Henderson et al. (2020) model the decisions of landowners throughout the city when a city is growing, and estimate their model based on Nairobi in 2003 and 2015. They have two types of technology, one for the formal sector where buildings are made of loadbearing durable materials and can be built high, and the other for slums. This corresponds to data: in the residential sector in Nairobi they show that 84% of formal buildings in 2012 in Nairobi are made of brick, block, or cement, with much of the rest being high quality wood construction, all potentially load bearing. In slums, about 75% of buildings are made from corrugated iron sheets, mud, and mud mix which are not load bearing and material that either short lived (mud) or malleable (corrugated iron sheets). Thus, over 85% of slum buildings are under 5 meters. The authors conceive of formal sector buildings being built at a point in time, lasting decades, and then being torn down and replaced in a growing city with a taller building. Slums require no long term decisions as they are malleable or short lived. In this environment real building volumes and land prices are rising over time throughout the city, and land and housing prices are both sharply declining with distance from the city centre. In 2015, land prices at the centre were over 5.5 times higher than at 10km from the centre.

Starting with the city decades ago when it was small, the authors model the decisions of a landholder who starts outside the city in farming. When the city expands and the edge meets her farm, the farmer changes use and provides slum housing. Why slum housing? It is very land intensive (single story) and cheap to provide. This also corresponds to the fact that in Nairobi over half of slum housing near the city edge is on private land, and that new slums from 2003 and 2015 appeared primarily at or near the city edge. As the city continues to grow and the edge rolls by her, she intensifies her slum investment using up more and more of the green space as prices rise at her location. Then at some point when prices of rental housing at her location rise high enough to convert use, she puts up her first formal sector building and chooses a height and intensity meant to last decades.

Note the implication is that, as the city grows, slums previously at the edge of the city will be redeveloped into formal use. Decades later as prices have risen so much more at this location, her family then demolishes this first formal sector building and builds a much higher one. This process goes on indefinitely as the city grows.

Some important facts emerge which may apply quite generally in looking at major developing country cities. First, implicit in the theory is the notion that large waves of redevelopment, at particular point in time, occur generally in a particular section of the city such as at 3-5 km from the city centre as in Figure 2. There volume growth in the formal sector is almost all redevelopment. Second there is enormous churning. At 3 km from the city centre over 30% of formal sector buildings in Nairobi were torn down from 2003 to 2015, a phenomenal rate by developed country standards. As Figure 2 shows, these demolished buildings were replaced by much higher buildings.⁷

For some researchers including many at the World Bank, there is a critical debate. Some argue that existing core cities are a train wreck in terms of infrastructure deficiencies and planning and, therefore, planning, construction and infrastructure investments should focus on de novo development on the edges of cities and in ex-urban areas, where planners can start from scratch. This argument has two problems. First, planning in some cities may have little influence on how development proceeds. Second, Henderson et al. (2020) compare intensity of investment in the 2003 urban core with the extensive margin between the 2003 city and the 2015. The total sizes of the 2003 core and the extensive margin are similar. Overall, the total volume of building space increased by 60% in the 2015 city, but two thirds of this increase was within the city core. Market driven demand is directed more at developing and intensifying use within the existing city, to which Figure 2 also attests, rather than in investment at the extensive margin.

2.2 Evolution of property rights in sub-Saharan Africa

Turning towards the legal and historical context, today most countries in sub-Saharan Africa operate with a multi-pronged land tenure system that typically relies on at least two historical forms of land law, customary land tenure and inherited colonial tenure. Before colonialism, most countries operated primarily on some form of customary rights where a village leader, council, king, or chief made use allocations to families. Such allocations could be temporary or renewable, allow for inheritance, and allow transfer typically through a bill of sale. A family's rights were known by "common knowledge", verified by the testimony of neighbors and leaders.

With colonialism the incoming colonial power tended to claim all land in a country as belonging to the state, except land not under customary tenure, or land that was "vacant and without master [owner]" (Djire (2006) on Mali). Then the colonial state could subsequently allocate the claimed land for individual ownership. In many, if not most countries, independence did little to change this dual system of inherited colonial tenure and customary law. Frictions between the two systems persisted through periods of turmoil, regime changes, and the progression of democracy or lack thereof. The State in

⁷There is also a 100-200% increase in footprint given scale economies in expanding footprint when building high.

the form of the President or local authorities replacing the colonial rulers generally made grants of land to private use under freehold or leasehold. Nevertheless, today most cities have modest shares of land under private ownership, with recorded title deeds. Courts continue to enshrine customary law. For cities, several key issues have emerged.

With the rapid onset of urbanization, cities face exploding populations leading to increasing land scarcity and a spread of cities into rural areas. In-migrants tend to settle customarily or informally at the city fringes. Customary land tenure remains dominant in rural areas, while emerging markets for land in urban areas demand a degree of formality to facilitate intensive investment. As a result, overlapping land regimes in peri-urban areas contribute to especially high levels of ownership disputes, conflicts, and opportunities for land grabbing and illicit transactions (Wehrmann, 2008).

Second, while customary or communal rights work well in many rural environments even today in countries like Indonesia or China, they do not perform well in urban environments. In traditional villages, typical desired investments in structures on the land are low, and there is an inter-generational set of families in a village who all know each other and have a mutually beneficial trust environment. In cities, there is no such tradition and persistent inter-generational set of families around a household. As discussed earlier, high levels of investment on land held informally lead to risk of appropriation, with a limited ability to appeal to local councils and neighbors based on common knowledge of a household's rights. This leads to a demand for formality.

Moving to formality can start with a paper trail that establishes a family's rights: for example, a bill of sale on the property, a record of tax payments, and notarized testimony. In Bamako, Durand-Lasserve et al. (2015) write of "precarious titles" where a family garners use rights after paying taxes, fees, and obtaining use right documents ("lettre de notification"). If one overcomes all these hurdles to get a precarious title ("concession urbaine de d'habitation") that can lead, in theory but not usually in practice, to granting of ownership rights. Rights that are intermediate between pure customary and private ownership are common in most countries.⁸

Despite this need for privatization, the pace is typically slow. For example, in 2009, while 57% of people in Bamako District owned a house (Minnesota Population Center, 2019), only 39% of those had a formal title (Durand-Lasserve et al., 2015). Similarly, in Lagos most land transacts informally. For example, in 2007, Butler (2019) reports only 2714 applications for formal transfer of property rights in a city of over 11 million people. In our case studies below, we further discuss the difficulties of formalization. That said, the literature suggests that within cities like Bamako, Kampala, Nairobi, or Lagos, little remains under pure customary rights (Butler, 2019; Durand-Lasserve et al., 2015; Hoza,

⁸In Maputo, rather exceptionally for Africa, the state has sponsored moving towards a system of greater formality that deliberately relies on customary tenure. Although the state can grant formal use allocations ("Direito de Uso e Aproveitamento dos Terras (DUAT)"), in practice much of land ownership in Maputo is "informal", partly because most buildings do not comply with building regulations or land use plans (Habitat, 2005). Nevertheless in spite of this "illegality", the state appoints neighborhood officials ("secretarios de bairro") who work with local leaders to bypass these violations of formal regulations and to ensure an accurate property register. For informal occupants instead of a title deed, bairro secretaries issue a "declaração" as proof of residence, which are in turn "recognized by banks, the municipality and employers to obtain a loan (for example), or verify to potential employers that an individual is bona fide" (Kihato et al., 2012).

2018; Kimani, 1972); most land is in limbo between customary and formal rights.

This description is very general. What has emerged in Africa differs from place to place, depending on history, the intervention of the colonial government, what happened at independence, and the more recent history of legislation and degree of corruption. We will characterize three examples more fully to give a sense of the diversity and issues. In general, it seems as though there is either a very slow path to formal private rights, or a very corrupt quicker one.

2.2.1 Kampala

Historically, Kampala has operated under two traditional land systems—customary and mailo land tenure—along with the two statutory, or private rights systems (freehold and leasehold) first introduced during British colonialism. The 1900 Uganda Agreement divided Kampala between the British and the Bugandan Kingdom. On Crown land, the British made freehold and leasehold grants. After independence, management of freehold grants was delegated to the Ugandan Land Commission (ULC), while the Kampala District Land Board (KDLB) managed leaseholds, a continuing arrangement. In contrast, Bugandan land operates under the mailo system, in which there is dual ownership in theory: an owner of the land and a land tenant who, in essence, owns the structures built on the land. Tenants are issued certificates of occupancy by land owners, under which occupants pay a typically below market ground rent to private owners or the Buganda Land Board (Bird and Venables, 2019). Subject to the owner’s consent, tenants have the right to use, assign, sublet, pledge, create third party rights, and sub-divide the land. However, Deininger and Ali (2008) argue that such overlapping rights, where property transfer requires consent and agreement on the sale and financial terms of both the land and property owners, reduces investment on the land and makes transactions more difficult. Tenants have an incentive to thwart land sales given their lower rents, and any change in use (from say residential to commercial) would be difficult.

Despite some turmoil post-independence, the 1998 Uganda Land Act reestablished the system and general allocations of 1900. It also set the complete non-conversion of mailo land to freehold or leasehold, and the non-eviction of tenants from mailo land as long as the low annual ground rent is paid. Using 2002 census data, Bird and Venables (2019) find about equal proportions of four types of residential land systems: freehold, leasehold, mailo tenancy and customary tenure.⁹

Kampala’s history demonstrates that land tenure can be very complicated and multi-layered. However the political settlement processes have locked the city into a distinctly sub-optimal system. On the face of it, rights on most land in Kampala especially in the core are well defined, which should be good for promoting investment. However there can now be no conversion of mailo land to formal land and mailo land presents issues. Despite the enshrined systems, the 2002 Census suggests about 61% of the population

⁹However, there is a debate as to how much land in Kampala is under customary tenure: while Bird and Venables (2019) find a proportion closer to 20-30%, Muinde (2013) argues that there is a negligible amount of customary land in Kampala. The discrepancy could be due to different definitions of the metro region where, as noted above, customary land from farm areas is absorbed by the city as it expands. Hoza (2018), Muinde (2013), and Bird and Venables (2019) elaborate.

lives in informal housing, much of it on mailo land. The reality, despite the mailo system in theory, is that in practise there is a lack of paper records for mailo tenants which would give more formality. That presents an eviction risk that also dampens investment incentives. Not only does the dual ownership system on mailo land impede sales and upgrading given high transactions costs, there is a strong incentive and some opportunity for land owners to expropriate. Bird and Venables (2019) find that, other things being equal, investment on mailo land is well below what it would be under freehold or leasehold.

2.2.2 Dar es Salaam

Historically, upon first German and then British colonialism after World War I, in theory all land, occupied or not, was public land under control of the Governor, who then granted formal leaseholds. Such land covers parts of today's downtown Dar es Salaam. Customary rights were reintroduced for native communities. This second form of land tenure did not offer documentary proof and was viewed as inferior. With independence in 1961, for urban land, the colonial structure of property rights continued. As Dar es Salaam expanded and rural customary land areas were declared under the urban domain and included in the urban plan, some land came under government control, while other land was privately and informally purchased. Most people derived security of tenure through informal institutions, even if not wholly sanctioned by the statutory authorities, again an intermediate form of rights. References include Midheme (2007), Kironde (2006) and Kombe (1995).

The Land Policy (1995) and Land Acts (1999) led to the current day situation. All land remains vested in the President as trustee. As before, rights to use and occupation can be either statutory or customary, administered by the Commissioner for Lands. In principle. the Acts allowed two forms of statutory titles in urban areas. Urban plot owners can acquire either a formal leasehold on fully surveyed land called Certificate of Right of Occupancy [CRO], or a Residential License [RL] a temporary right renewable every 5 years on land that has been demarcated through the collective identification of boundaries involving local leaders and neighbours (then recorded in shape files), but not surveyed.

The RL is supposed to be a step towards a CRO and offers recognition over possessory rights: cadastral registration, legal transferability, and enforceability in state courts. According to cadastral records about 50% of properties have a RL. However, notably, 72% of those licenses are expired (Manara and Pani, 2020). The government is seeking to expand RL's even more, to try to cover land still held customarily. RL's are inexpensive. However it seems residents place little value on them and don't bother to renew their licenses as they expire. While in principle RL's can be used as security on bank loans which would be of value, banks avoid making them so that they are rarely used and only for very small loans.¹⁰

¹⁰sheuya2016tenure show that only 2% households with an RL have a loan backed by the license. Moreover, such loans have ceiling limits and are not used for mortgages but rather small home improvement or business loans. In Dar es Salaam, for a bank to make such a loan is costly because they need to check authenticity and worry about other 3rd party claims; so they send out representatives to interview neighbors and the local leader as part of the authentication process (Manara and Pani, 2020). Such costs make loans backed by informal ownership rights costly; hence the very low volume.

The government has announced it wants all urban land to be eventually formalized under CRO's. So far, in Dar es Salaam, about 20% of land has been surveyed ready to receive a formal title, or a CRO (Sheuya and Burra, 2016, p 447). It is not clear what fraction of this 20% have taken up a CRO but it is very little among lower income users (Manara and Regan, 2020b). Related, the rate of RL's converting to CRO's is minimal, so the question is why? The answer seems to lie in the fact that the cost of CRO's is very high, equivalent to about 2 month's household income, and the benefits perceived as limited. A common issue for many countries and cities is that formalisation is thwarted by high costs. Here we have evidence.

Invoices for CRO's in Dar es Salaam show that over 80% of the fee is not cost driven (such as costs of surveying and recording) but involve general revenue raising. They include fees for the Ministry to gain a share of the capital gain on a property from formalization, fees towards a "revolving fund" to cross-subsidize future formalization efforts, and revenue raising fees simply tacked on by the local municipality. These are simply efforts to raise general revenues by cash starved national and municipal governments. However, it puts acquisition out of reach of most residents and the costs are well above their willingness-to-pay (Manara and Regan, 2020b). In general there is also a sense that politically connected operators in the market do not want to see titling.(Ali et al., 2016). Expropriation and manipulation are much easier without it.

Another reason why people are not willing to pay high fees for title is that people are secure in the rights held informally: their land with the level of investment they have will not be at real risk of expropriation in Dar es Salaam. Coupled with a lack of information and trusted processes, most plot owners do not see an immediate need to acquire formal titles and rather tend to postpone this choice until need arises (Manara and Regan, 2020a).

The take-away message is that Dar es Salaam has experienced the typical complex evolution of customary land rights, colonial imposed rights, and the reaction to that in the post-independence time period, with recent reforms trying to impose some order. For Tanzania, however, the objective of widespread private leasehold ownership is thwarted, whether intentionally politically manipulated or not, by excessive fees. ¹¹

2.2.3 Nairobi

Nairobi differs from many cities, in that, most land is characterised as formal. However that path to formality has been highly troubled and the operation of the land registry and formal system has corrupt aspects. As background, Kenya has three different types of land: government (Crown) land, native (renamed trust) land which is rural, and private land in the form of freeholds or leaseholds, where owners have right to the land and everything above and below it. Native lands are rural lands, which continue to operate under customary tenure today. Historically, the colonial government claimed any land that was not under rural native use for the Crown. In principle, that made all non-private land in Nairobi Crown land, replacing customary land tenure. This delineation

¹¹While people underscore the importance of surveying costs (Collin et al., 2015), these other revenue raising efforts seem to be what cripples the stated intention.

between Crown and native land has left ambiguity as Nairobi has expanded into adjacent rural areas. For Crown lands, the Governor and Commissioner of Lands then granted freehold and leasehold allocations.

At independence in 1963, Crown land was transferred to the new government, whereby the vast majority of land in Nairobi was claimed as public land save for a small fraction sold to private hands by departing colonists. The power of allotment was then transferred to the President and Commissioner, with delegation of implementation to local committees, councils, and later more corruptly, to entities such as chiefs and members of parliament.

The root of the problem in Nairobi lies in the corruption of the allotment system of government and native land to private entities as leaseholds or freeholds (Commission, 2004; Southall, 2005).¹² Presidents and Commissioners have illegally allotted public and native lands. Specifically, these authorities illicitly distributed “letters of allotment”, which are letters of offer that the recipient can then take to the Ministry of Lands to receive a title deed (leasehold or freehold) after paying the price stipulated by the offer letter. However the Commission (2004) describes an illicit land grabbing process, in which these letters were instead often illegally sold and transferred to third parties who got the title deeds. For example, an allottee could be a personal recipient, who then resold to their own corporation to disguise a personal arrangement with the President. Many allotments went to favored individuals or corporations at a low price, which were then resold to third parties such as private syndicates at much higher prices.¹³

Today, given that these historical illicit transfers were formalized, about 90% of Nairobi’s non-public land use is ‘planned’ and under private title, with, at least in principle, formally registered deeds at the Ministry of Lands. The other 10% is informal slum land, often with the government claiming the land, but that claim being in dispute. While privatization may have spurred high levels of investment as suggested above, the problem in the formal market is continuing corruption and inequity.

The Ministry of Lands has responsibility for all forms of management: surveying, registering of titles, and recording of transactions. We carried out fieldwork in 2020¹⁴ Interviews revealed that titles can be recorded with incorrect plot numbers; titles can be not recorded; records can be changed and reassigned; and fake or redundant titles can be issued. The implication and result are that a buyer must invest heavily in assuring that a transaction is clean, which typically involves buyers either being companies with a specialized unit dealing with transactions, or large scale investors who hire companies who specialize in assuring that transactions are clean. For a low or middle-income home purchaser, the process for a one-time purchase can be too expensive to undertake, not to mention daunting.

¹²Government land consists of unalienated land, which is considered public until legally privatized, as well as an alienated portion reserved for public use only. Both land types in fact are in practise subject to allotment.

¹³The process under President Kenyatta was in part reversed when Moi (1978-2002) came to office; but, under Moi, later, the illicit actions intensified especially around general elections in 1992, 1997 and 2002, as detailed by the Commission (2004).

¹⁴We conducted interviews with officials from the National Land Commission (a directorate that manages Kenya’s public lands, and the recovery thereof) and the Ministry of Lands and Planning, as well as a number of legal advocates, real estate lawyers, and real estate developers.

As a result, from the 2009 Census, in Nairobi, in the formal sector 86% of all formal residential housing (89% in slums) is occupied by renters. The few owner occupants in Nairobi are mostly richer families. The rest of the population does not own housing.¹⁵ Instead they rent from a small group of land owners. The land grabbing process and difficulties of ensuring secure ownership imply such concentration. However, Cadastre and Ministry of Land records are not available to forensically determine the extent of concentration.

There has been some recent movement towards legal reform to provide more oversight and curb corruption.¹⁶ Likewise, there has been movement to digitize land titles at the Ministry of Lands, though only 30% of Nairobi is registered online to date. A point we will emphasize below is that a transparent land and property registry which covers all property is essential to having well functioning, equitable markets (Arruñada, 2012).

Despite its history of corruption, today, the Nairobi market works in the sense, as expressed in Section 2.1.1, of encouraging intensive investment. Given this investment is managed and owned by a limited number of larger land scale holders, a main issue is an equity one, as described next.

2.3 Owner occupancy versus renting: equity implications

In developed countries, owner occupancy rates are very high. Most OECD countries are well above 60% and only 2 or 3 such as Germany and Austria are at or just below 50% as reported in OECD (2018a) and displayed in Figure 3 below. As noted above, most people who rent do not own any housing property; if rental rates are very high, this ownership disparity can have enormous wealth equity implications.

As noted earlier, the World Bank (2006) suggests that in general about two thirds of the non-governmental capital stock of countries is in buildings and land. That is, setting aside public infrastructure like roads, military equipment, public buildings, and the like, the wealth held by individuals is primarily in the form of real estate property, a majority of it residential. That wealth can be equitably spread as when there are high rates of owner occupancy, or it can be held by a select minority. It is difficult to gather data on the concentration of ownership among those renting out properties. Such analysis requires excellent and transparent records maintained at the local level on the entire set of properties in a city. Even in developed countries, this analysis would be a challenge and would require city-by-city forensic auditing in situations where families may hold properties under different corporate and non-corporate names. In developing countries, such widespread records generally do not exist, and what exists is neither accessible nor transparent.

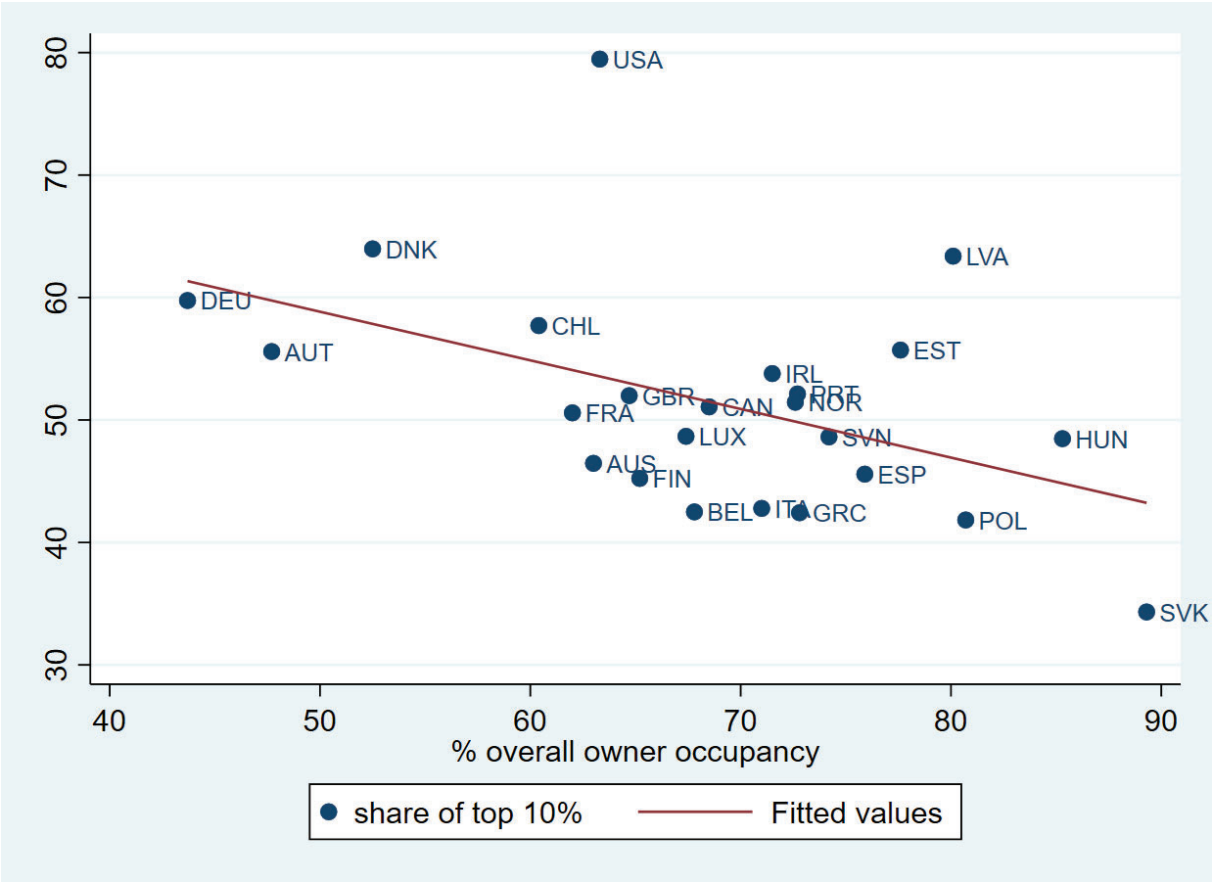
However, one can surmise that the more rental properties there are in a city, the more

¹⁵Low- and middle-income families almost never own a unit which they rent out, while at the same time renting their own accommodation.

¹⁶In 2012, the Land and the Land Registration Acts established a National Land Commission to manage public land and provide oversight responsibilities over land use planning; harmonized different administrative definitions and regimes from previous land acts; and revised the terms and conditions of leasing municipal land.

unequal the wealth distribution. To explore this idea, we look at correlations in national data for OECD countries. We took the 24 OECD countries with 2018 data on owner-occupancy and on the share of wealth held by the top 10% and top 1% in a country, as well as the mean to median wealth ratio. A higher mean to median ratio given the skew in wealth holding implies greater equality. Results are very similar for the different wealth measures, and we report on the top 10%. In Figure 3 we plot the basic relationship where, as the share of owner occupiers goes up, the fraction of wealth held by the top 10% declines. From the best fit line, if we go from 85% owner-occupiers to 45%, the share of wealth held by the top 10% goes from about 46% up to 62%. That is a substantial increase in wealth concentration as the owner occupancy rate falls.

Figure 3: Wealth concentration (share of wealth held by top 10%)



Data are from OECD (2018a,b) and are from circa 2018. The best fit line is: Share of top 10% in national wealth = $78.7(11.2) - 0.397(0.161)$ percent owner occupiers. $R^2 = 0.217$; $N = 24$. Adding a control for \ln GDP pc yields a completely insignificant coefficient ($0.811(5.51)$) and has no impact on the relationship. Similar qualitative results hold if wealth is measured either by the share of the top 1% in wealth or by mean to median wealth and if ownership is measured as share of outright (no mortgage) owner-occupiers in all residences

Apart from this contemporary picture on inequality, there is also a dynamic lens. In developing countries where cities are growing fast, basic urban economics tells us that real property value gradients within cities rise as city populations and incomes grow. Thus, the value of initial asset holdings rises quickly in real terms. The people who own these assets have high wealth appreciation. If ownership is widespread then that wealth increase is more evenly distributed than if property is owned by relatively few. If the latter is the case however, wealth inequality is likely to grow over time.

In Africa, owner occupancy rates vary enormously. We take the IPUMS International data and examine the primate city in 21 Sub-Saharan African countries (Minnesota Population Center, 2019). With the exception of Nigeria, for which there are repeated large scale surveys, the data we examine is for the most recent census year for the country in question. Table 1 lists the countries, primate cities, and the year of coverage. In Table 1, the first numerical column tells us the fraction of households which owner-occupy, generally including those who occupy family owned houses or compounds. Column 2 gives the fraction renting (for free, pay rent, or employer provided housing) and column 3 covers those cases where the information is missing. The remaining columns cover 3 countries where there is more detailed data on ownership.

The first take-away is that there is a huge range of owner occupancy, from a low of 14% in Nairobi to a high of 74% in Maputo, both major outliers. We have discussed Nairobi in detail, with its presumed high concentration of residential property ownership. For Maputo, the UNHCR (2006) describes a 1997 land law (Lei de Terra) granting 50 year land leaseholds, but most people have an informal right in the form of a *declaração* which is widely recognized institutionally, as noted in Section 2.2. Households then typically own the housing built on that land as a freehold, either formally registered or institutionally recognised.

The key issue is why in Table 1 there is a huge range of owner-occupancy rates. This wide range emerges from each country’s colonial and political history of land “reforms” or lack thereof, and the degree of corruption in property markets. In contrast to OECD countries, in Table 1, only 5 of the 21 African countries have owner occupancy rates above 50% and 4 of those are in the mid 1950s. In Table 1, 6 of 21 countries are below 30% and another 7 below 40%, so that 62% of the 21 primate cities have owner occupancy rates under 40%. There are no OECD countries with owner occupancy rates under 40%. Already this discrepancy hints at high ownership concentration of residential properties.¹⁷

Finally, in Table 1, for Benin, Mali and Togo, we have further ownership information. In Cotonou, only 15% of owner-occupied buildings have a title, with similar numbers for Bamako. This is consistent with the patterns noted in Section 2.2. Formality is a distant goal in much of Africa. While Nairobi may be an exception, formality in Nairobi occurred under enormous corruption, whereby it appears likely that there is very high wealth concentration of property ownership. As Nairobi’s housing prices continue to appreciate, that gain will go to relatively few families.

¹⁷However, Ethiopia is a potential exception to the implication. There, owner occupancy rates are low in part because the government has traditionally been a big player in the housing market, where 24% of households in Addis in 2007 rented from the government. However, that number is sharply declining overtime as the rent-controlled government market is replaced by owner-occupied condominiums promoted and subsidized by an enormous government program (Franklin, 2019).

Table 1: Owner occupancy in different primate cities in Africa

Country Year	Primate city	Population (1000s)	Owner occupied or family house	Rent (pay, or other employer)	Unknown	Ownership breakdown					
						Owner w title	Owner w/o title	Family property	Family w title	Family prop. w/o title	Co-owner
Burkina Faso 2006	Ouagadougou	1,727	59	37	4	6	11	n.a.	9	17	
Benin 2013	Cotonou	679	43	56	1						
Cameroon 2005	Yaounde	1,882	36	63	1						
Ethiopia 2007	Addis Abba	2,738	33	67							
Ghana 2010	Accra	1,893	26	67	7						
Guinea 1996	Conakry	1,113	28	70	2						
Kenya 2009	Nairobi	3,138	13	85	2						
Mali 2009	Bamako	1,810	46	51	3	13	21			10	
Malawi 2008	Lilongwe	674	39	52	9						
Mozambique 2007	Maputo	1,095	74	25	1						
Nigeria 2007-10	Lagos	8,048	24	76							
Rwanda 2012	Kigali	1,133	32	68							
Sudan 2008	Khartoum	1,411	56	44							
Senegal 2002	Dakar	2,168	44	56							
South Sudan 2008	Juba	368	54	46							
Togo 2010	Lome	840	38	62		6	5	27			
Tanzania 2012	Dar es Salaam	4,365	37	63							
Uganda 2002	Kampala	1,189	21	72	7						
South Africa 2011	Johannesburg	12,272	57	40	3						
Zambia 2000	Lusaka	1,747	37	63							
Zimbabwe 2012	Harare	1,485	27	62	10						

*Population figures are taken from the same year as the survey year, with the exception of Lagos, for which 2006 census numbers were used. Numbers were calculated using original source variables from the Minnesota Population Center (2019). Data are drawn from national censuses, except in the case of Nigeria, for where General Household Surveys annually from 2007-2010 were used. Numbers for Nigeria were calculated by taking averages across all four surveys. Population numbers were calculated using the same sub-national geographic levels defined in the IPUMS data, from Brinkhoff (2020).

3 Planning, regulation, and transportation

Economists working on developing countries recognize the role of planning and regulation in land market outcomes (e.g., Goswami and Lall 2019, and the papers in Lall et al. 2014). Researchers state the important role of planning and regulation in creating sustainable cities, building on the literature that suggests that planning and regulation exist to impose order on cities and deal with externalities and public goods, without which uncoordinated decisions by individual builders could lead to “chaos” in city design and a true hodge-podge of spatial structures and city lay-out. Note that a lot of planning involves the provision of public goods such as roads, utilities, and parks, as well as the eminent domain right of governments to take land from private use for the public good. Proper planning and provision of public goods are for the greater good and better planning will enhance the value of private land holdings. Not only is Africa challenged by an absolute dearth of planners (Lall et al., 2017, p 132), the planning itself and the associated provision of public goods leaves much to be desired.

Given the acknowledged need for better planning and regulation, economists offer little on the details of planning principles and processes, partly because planning crosses so many disciplines. City planning involves (1) planners and traffic engineers laying out city roads and transit to improve traffic flow and increase accessibility throughout the city; (2) planners doing both configurations of and regulations on land use and neighborhoods to reduce negative externalities imposed by obnoxious uses (such as air and noise pollution); (3) planners and landscape architects working to improve positive socialization and physical externalities from positioning of public spaces and regulating building heights, footprints and plot sizes; (4) planners and architects worrying about aesthetic concerns and preservation of historical sites; and (5) planners and engineers planning the spatial layout of utility infrastructures coordinated with road layout to improve health outcomes. Economists write about planning in a piecemeal fashion, looking at individual aspects (Goswami and Lall, 2019), typically in an aspatial framework. There is little empirical work in developing countries, almost nothing on Africa, and again all piecemeal. There is a bigger literature on one public good, city transport, with a few papers emerging on Africa. Here we review selectively some of what has been done.

3.1 Regulation

Economists have looked at specific examples in developing countries where land use regulation is clearly poorly done, mirroring the developed country literature in cherry-picking badly done regulation. Brueckner and Sridhar (2012) present evidence that building height restrictions in a large sample of Indian cities have led to enormous sprawl with increased city footprint and implied commuting times. There is similar work on China with Zhi Wang, Qinghua Zhang and coauthors looking at height and farm to urban land conversion restrictions. For example, Tan et al. (2020) show that height restrictions and limited conversion of rural to urban land have contributed to supply shortage and rising housing prices in China. Excessive minimum lots sizes in developments have led to “backyarding” in South Africa, where owners of land designated for single-family use, in fact, additionally build backyard structures to rent out (Brueckner et al., 2019). This last

work shows how markets can work at some cost to mitigate poor regulation in contexts where such regulation is not strictly enforced.

Many regulations emanate from the colonial era where colonial regulations were based on standards of much richer developing countries (e.g., the United Kingdom Town and Country planning acts). They have led to planning in African countries where minimum lot sizes and building footprints are set at ridiculously high levels in the context (Lall et al., 2017, p 136). The result is that such regulations are not enforced and, in some sense, largely ignored. For example, in Dar es Salaam, evidence in Lall et al. (2017, p 119) shows that the minimum building footprint of 375 sq. meters is violated by well over 90% of all buildings. In Nairobi, the majority of buildings violate the minimum lot size of 500 sq. meters—the modal lot size is about half the specified minimum—and there is not even any concentration of plot sizes around the legal minimum (Henderson et al., 2020, Figure A2.2). It appears that such regulation has little or no bite in constraining choices.

If there is no bite, does that mean excessive regulation is harmless? The answer is generally no. Violating a building regulation places that building in a quasi-legal status and creates a rent seeking situation where officials can collect bribes to look the other way. It may also put at risk the value of future sales and the then ability to transact and put the land into a different and higher category of use, since its status is quasi-legal, not fully legal. While in principle, regulators could either overlook or grandfather historical violations and revise regulations, the political economy problem is again rent seeking: how much must regulators be paid to overlook such violations in granting current requests? Moreover, granting exemptions to historical requirements penalizes those who obeyed the initial regulations. Then, there is the credibility issue of staving off future violations when repeated grandfathering is perceived to be likely. In principle a government could simultaneously grandfather past violations, pass regulations that are realistic and more in line with the market, and then strictly enforce those for new buildings. Of course, moving to such a regime where principle actors at the local level buy into a strict new regime through a political settlements process (Goodfellow, 2018) is a thorny issue, given all the vested interests at work and issues of what commitments to start enforcement could be perceived as credible.

3.2 Planning

Urban economic theorists in simple settings examine the potential impact of an authority with overall control on land use in a metropolitan area, as opposed to there being either no control or decentralised governance. There are two main points. First, planning and local government authority are required to ensure viable provision of public goods such as roads and parks, a simple point from the public economics literature. Second, such management should help deal with the externalities that different land users impose on their neighbours. For example, Rossi-Hansberg (2004) and Helsley and Strange (2007) show that, in the face of communication or social interaction externalities which decay with distance, absent appropriate regulation by a single city authority, cities will lack efficient density of activity near the city centre. More informally, Brueckner et al. (2001) and Brueckner (2005) note that uncoordinated developers will encourage sprawl, through, for example, ribbon developments sited along government built arterial roads to take

advantage of the free public infrastructure. Overall, theory suggests that uncoordinated and decentralised land development will result in cities that are less compact.

A recent paper by Baruah et al. (2020) presents evidence on this issue in sub-Saharan Africa, examining the effect of differential planning procedures by British versus French colonial powers in over 300 cities. Based on a large literature by historians, the authors argue that Anglophone cities were subject to little overall planning and operated with uncoordinated developments with no planning in the native sections and no overall plan for the city. In contrast, Francophone cities were subject to local centralized planning which imposed a lineal, integrative, and gridiron structure of roads and interlinked neighborhoods throughout the city. The ideal gridiron structure is that every block is rectangular, where at the four corner-intersections one can see 2 km in all four directions (Njoh, 2016, Chapter 1). This structure helps force greater contiguity of land use with less holes or unused land, greater overall density and truly inter-linked neighborhoods over large swaths of cities. Baruah et al. (2020) show that Francophone cities have much less sprawl, much greater density of use near the center, and less leapfrogging of new developments at the city edge, or less disconnected land use. The last implies that the colonial differential standards and use of planning persist today in outer sections of the cities, built decades after the end of colonial rule. While some outer areas could be built as on-going extensions of colonial roads and layouts, in cities where the amount of built space increased multifold from 1975 to 2014 (Baruah et al., 2020), it seems that this persistence of compactness reflects post-colonial persistence of planning norms, enforced by local social norms concerning city layout that must have developed over generations of colonial rule.

There are policy implications of building more compact cities. The planning literature argues that compactness lowers the cost of providing public services and urban infrastructure. Compact cities require less infrastructure per person in the form of roads and utilities, with the planning literature offering different assessments of the savings from compactness (Trubka et al., 2010). Hortas-Rico and Solé-Ollé (2010) provide econometric evidence on public budget cost savings from increased density for Spain, and Carruthers and Ulfarsson (2003) do the same for the USA. Baruah et al. (2020) using DHS data within and across 193 cities in sub-Saharan Africa show that families have worse connections to electricity, phone landlines, piped water, and city sewer systems if they live in neighborhoods of a city which are more sprawling with lower density, presumably because of increased cost of infrastructure provision.

Having more compact cities has many more effects on urban life. Ahlfeldt and Pietrostefani's (2019) meta-study looks at the impacts of the higher density that comes with greater compactness. The authors carefully review the literature to suggest that increased density is significantly associated with reduced energy consumption and vehicle mileage, lowered public sector costs, and increased wages and productivity. This builds on a literature demonstrating that compactness reduces pollution (Glaeser and Kahn, 2010) and commuting times (Harari, 2016), and positively affects how we interact socially (Putnam et al., 2000).

For Africa, Henderson and Turner (2020) show high returns to increased local density for wages and most particularly family incomes, especially as density increases from about 600 people per sq. km to 8000 or more. Denser environments allow family members to find

jobs better suited to their skills and interests, and present a greater range of opportunities to work longer hours.

There is a clear need for more studies on the positive and negative effects of compactness and density on outcomes in the developing world, where urban densities are so much higher in the developed world. Thus there is a corresponding need for high quality data on the issues.

3.3 Planned Neighborhoods: Sites and Services

Recent work on the historical USA has suggested that advance planning of neighbourhoods with at least the road lay-out leads to better economic outcomes compared to neighbourhoods which were not planned prior to development. An example is historical New York City, where areas of Manhattan which were laid out in a grid network in the 19th century today have better outcomes than those which were not laid-out (O'Grady, 2199). In the developing world, city-wide planning is often poorly and/or not enforced. A prime planning pool is to plan at the neighborhood level and lay-out neighborhoods in advance. A major example are the World Bank sites and services projects. While sites and services were designed to meet housing needs per se, they were also neighborhood planning initiatives.

In the 1960s until the mid 1990s, the World Bank operated a variety of sites and services programs around the world. These involved the planning of large, or even enormous, greenfield neighbourhoods within a city. The program physically laid out neighbourhoods: the road network, plot footprints, and basic infrastructure such as a selection of utilities that varied by context. Residents were then allocated, generally titled plots, on which they self-built housing with varying levels of support for materials and technical advice.

Michaels et al. (2020) examine sites and services projects from the 1970s and 1980s in Dar es Salaam and other cities in Tanzania, with a control group of adjacent initially greenfield areas, as well as then existing slums (some of which were subject to slum upgrading at the time). The first finding is that what was planned back in the 1970s and 1980s in terms of neighbourhood and road layout, plot footprints, and density basically has held over time. These were permanent imprints on the landscape; they did not erode in general nor were overrun. Second, the quality of buildings and materials in these neighbourhoods and the infrastructure today dominate the control group, as do property values.

For such planned neighborhoods, there is sorting, which is an issue in evaluating welfare effects. These are not slum areas today, and generally they have a population that is at a somewhat higher socio-economic status than the control greenfield areas. Today there is sufficient demand to live in these advance-planned areas, so as to generate property value premiums compared to any control group. This suggests that there is an excess demand for the supply of this type of planned neighbourhoods. At least in Tanzania, there is now both private and public initiatives to scale up the provision of such neighborhoods (Kironde et al., 2015).

3.4 Slums

Section 2.2 detailed a conceptualization of the dynamic development of cities, where slums are a vast source of cheap, land-intensive housing that is provided where land is low-priced, as at the edges of cities. As a city grows and the former edge becomes significantly interior to the city, the short-lived and malleable housing in slums may be deconstructed or demolished and the land vacated, so that developers can build new highly durable and taller buildings. This neat pattern faces several issues. First is that, when countries grow into higher income brackets, they tend to outlaw makeshift housing, tent cities, and places where their current homeless might actually live. Such constructs are deemed to be an eyesore and “unsafe”. Second, the scenario where slums are replaced by high intensity investment requires private property rights, or something very close to it, as discussed in Section 2.1. A land owner may have strong possessory rights which at some substantial cost she can convert to full title. However, in many cases not only may full titles be unobtainable but possessory rights may be weak.

For example, Henderson et al. (2020) examine parts of the Nairobi core city which are occupied by large slums, such as Kibera, one of Africa’s best known slums. The government since independence has claimed ownership of the land but that ownership is contested by families who held the land historically (Etherton, 1971; Joireman and Vanderpoel, 2011). The government does not manage the land and allows, in a distinctly corrupt process, for illegal landlords to operate slum units there. As the majority of these landlords are political figures or civil servants (Gulyani and Talukdar, 2008) who run profitable slum housing businesses, there is little political will to resolve the conflicts and redevelop the land. The current landlords have no claim to the land nor the profits from redevelopment; they would just lose profitable businesses. Essentially the formal ownership rights of the current landlords are close to zero, which also means they would never invest in tall, highly durable buildings, as noted in Section 2.1.2.

The key issue is the inability of the political process to come up with a solution where these high-value, older slum lands turn into private land to be intensively developed in the formal sector. That could come from granting formal ownership rights to the land under their buildings to tenants or groups of tenants. Then they could sell to developers. Another alternative is to buy out illegal landlords, force (but hopefully with just compensation) relocation of current tenants and then title and auction the land for development. Obviously, such different solutions have vastly different equity implications. However they have strong efficiency implications.

There is a large welfare loss due to this lack of recognized property rights in Nairobi core city slums. Henderson et al. (2020) estimate that for slums 3-5 kilometers from the city centre (which covers large parts of Kibera), if illegal landlords were paid off for the value of their land in perpetual slum use—even if they have no legal claim over it—there would still be a immense surplus of about \$18,000 USA (2015) per slum family. This occurs in a context where these families pay in total less than \$700 per year in rent. The total surplus for all these government slums (after illegal landlords were paid off) out to 7 kilometers from the city centre is over \$2.5 billion, or about 45% of Nairobi’s GDP in 2015.

A strong role for slums in low income country cities does exist, but it is for slums

built on cheap land such as at the city edge. That is indeed where new slums appear. However the persistence of situations like Nairobi's is common in the developing world: huge tracts of high value land are trapped in slum use near city centres. As a silver lining to the cloud, Henderson et al. (2020) note that, on the most high value land within 2 kilometers of the city centre in Nairobi, slums have disappeared, some even in the last dozen years. Somehow, the incredible market pressure to redevelop the land resulted in a political, perhaps illicit solution to free up these lands for development.

3.4.1 What to do with old persistent slums

For these vast historical slums near the city centre in Lagos, Dar es Salaam, Accra and throughout Africa, there are many initiatives to improve conditions. Led by NGO's, the World Bank, and local and national governments, there is a strong effort in slum upgrading. An example is the Community Infrastructure Upgrading Programme [CIUP] program in Dar es Salaam (Coville and Su, 2014). This program improved infrastructure in informal areas of Dar, with marked improvements in roads and drainage, the major focus of the program. There were also improvements in access to water, sewage, garbage collection, lighting and the like, compared to a well-defined control group. Coville and Su (2014) find related improvements in health outcomes. In general, it seems difficult to fault basic slum upgrading that at a reasonable cost improves the quality of life of residents.

Nevertheless, recent literature points out two issues with upgrading programs. First, despite short and even medium-term improvements, it is unclear whether the benefits last in the long-run. Such investments need maintenance, and could happen anyway even without concerted programs. It is possible that residents could abuse investments in side-roads and pathways by for example, crowding into and effectively obliterating such project roads and pathways. Second, under certain conditions, there is a question of whether such investments delay a political settlement that would allow redevelopment of high value slum lands into better and more intensive usage in the future.

On the first issue, Michaels et al. (2020) provide evidence for Dar es Salaam and other cities in Tanzania looking at slum upgrading programs from the 1970s and 1980s and comparing them with both greenfield areas and existing slums that were not upgraded. Today, these historical slum-upgraded areas if anything have slightly worse outcomes in terms of housing quality and infrastructure compared to a control group of slums from those times that were not subject to upgrading.

On the second question, a paper by Harari et al. (2019) looks at slum upgraded areas under the Kampong Improvement Program [KIP] in Jakarta in the 1990s. These programs aimed primarily to widen and improve roads, to improve drainage, water and sanitation, and to add walkways over areas where paths were often flooded. The program also promised a period of non-eviction for 15 years. In kampongs, people have possessory rights but generally not titles. Harari et al. (2019) use a border methodology to define different control groups, selecting primarily traditional kampong areas that were adjacent to the treated, KIP areas. Effectively in many cases, a traditional slum area would be split between treated and untreated areas. They find almost shockingly that, 20-25 years later, the non-KIP control group have significantly taller and higher quality buildings, higher

land values, more regularity and formality, and much lower density. The implication is that non-KIP areas in the past 25 years have been redeveloped into more formal usage, especially near the city centre where land values are high. The KIP areas are in contrast stuck in time. The results, while quite convincing, beg the question: if non-KIP areas were redeveloped into more formal usage, why were KIP areas not? The authors have offered different explanations. One is that KIP solidified the irregularity and fragmentation of these communities; another is that residents were empowered by the upgrading and non-eviction promise to resist redevelopment efforts. Both made it harder for developers to assemble the land, obtain titles (through whatever means) and undertake redevelopment. Thus KIP areas were more costly to assemble and have been likewise slower to redevelop.

Of course, Jakarta is a special context, where in many cases kampong residents have had strong possessory rights, some dating generations. Land is transacted informally but transactions have neighbourhood recognition and validation. The government however has refused to undertake or allow widespread titling initiatives in kampongs, that would give title to the land to these long-term family holdings. That has complicated the redevelopment process, and perhaps more so for KIP areas.

3.5 Transport

Urban transport infrastructure is the biggest public good in terms of capital and operating budget allocations in most cities. It has long been recognized that urban transport infrastructure, starting with rails and roads, has huge impacts on where people live in a city, where they work, and, in general, on the shape of cities (Meyer et al. 1965; Baum-Snow 2007 on the USA). Urban theory models tell us the improved access to the city centre allows commuters to decentralize or spread out, consume more housing at cheaper prices further from the city centre, and commute longer distances by car or bus more cheaply. That is, better transport encourages separation of work places and residences, and promotes clustering of firms to encourage exploitation of scale economies. For China, Baum-Snow et al. (2017) estimate that each additional highway ray from the city centre displaces 4% of the population to suburban areas. Ring roads making commercial transport from the edge easier via links to radial rays also encourage population decentralization. Finally, as Meyer et al. (1965) argued, Baum-Snow et al. (2017) for China show that more rail rays and ring roads (linking to rail yards and sidings) also lead to decentralization of manufacturing to suburban and ex-urban areas.

The problem for Africa is that, to date, few cities have built limited access highways within the city, let alone ring roads and very few families own cars for commuting. Most countries have very dysfunctional rail lines and a very weak manufacturing base. Most commuting (Lall et al., 2017, Figure 2.12) is by foot, bicycle, or informal minibuses and collective taxis. There is little formal public transport in the form of buses, rail and subway transit, or bus rapid transit [BRT].

Rail and bus rapid transit have enormous potential to improve the workings of cities. Work on the development of the London underground in the 19th century by Heblich et al. (2020) shows how the underground and connecting rail system transformed London from a city where most people lived near where they worked so the typical commute was under

1 km, to one where work places were more clustered especially near the city centre and the typical commute was 5 km or more. That is, people spread out and jobs centralized. In effect, it moved London from being more a collection of villages to a city with a more distinct downtown where businesses clustered and to which many people commuted and to a city with more distinct suburbs where people resided.

While underground and rapid rail transit have spread to the developing world, such systems are incredibly expensive to build and African incomes are below those of 19th century London. Africa has urbanized at comparatively low incomes compared to other regions of the world (Lall et al., 2017) and with weak institutions. The ability to finance huge infrastructure projects is modest, both in terms of what people can pay and in terms of the ability of the public sector to raise revenues and borrow. Along with few limited access highways, Africa has no underground and rail transit outside of South Africa. A much cheaper alternative is to build BRT's, although BRT's use up city surface land and can impede car traffic flows, compared to the underground. The first big and best-known widespread BRT system is the Transmilenio in Bogata. Tsivanidis (2018) analyzes the system finding that the Transmilenio has also worked to increase job clustering and corresponding commuting distances.

In Africa, a few cities such as Lagos and Dar es Salaam have started to invest in BRT's. An initial evaluation of the BRT in Dar es Salaam by Morten et al. (2020) with a before and after survey of families found that the first line which opened in 2016 has increased satisfaction with public transport, commuting, neighborhood, and security. For those living near the first line compared to those living near lines to be opened in phase 2, they find reductions in commuting times. However, they find no job effects: no change in likelihood of being employed, no differences in likelihood of moving, and no wage or productivity effects. However, we note this is an initial evaluation in the early years before the system goes all the way from phase 1 to phase 6. The Heblich et al. (2020) paper on historical London gives hope that, once complete, this system will help transform Dar from a "collection of villages", albeit very dense contiguous ones, into more of a city with huge employment clusters in the centre and elsewhere, to facilitate exploitation of external economies of scale.

The labour market literature has also addressed the consequences of poor urban planning and limited transportation infrastructure on job search costs. With high unemployment rates across major cities in Sub-Saharan Africa, and where even highly educated individuals struggle to find employment, skills mismatch cannot fully explain high unemployment rates. At least in the short term, high transportation costs significantly limit prospects of the job-search process. Fafchamps et al. (2018) and Franklin et al. (2015) test transport subsidy interventions, finding large and positive effects on the likelihood of finding a formal job in Ethiopia. Banerjee and Sequeira (2020) further find that poor urban infrastructure and high transportation costs in South Africa can fuel imperfect information and in turn spatial and occupational mismatches, where people living on city fringe over-estimate wages and employment prospects in the city center. Physical distance and high transportation costs exacerbate the information bias, such that individuals have difficulty searching and targeting jobs effectively.

4 Property taxes

Proper land management usually involves property taxation, which in turn is typically an integral part of locally raised revenues in developed countries. It is the one tax that is in principle easy to collect and administer locally. Unlike income, VAT, or sales taxation, what is being taxed cannot be hidden. Enforcement under good institutions is very effective; the item under taxation sits within the city, cannot be moved, and is fully visible to city officials. Under certain forms the tax can be a non-distorting and can be closely related to provision of local public services such as schooling, local roads, parks and police, and fire protection. Accordingly, the property tax is often seen as a benefit tax.¹⁸ As such, by pointing out the close connection between their taxes and benefits received, it may be easier to encourage citizen engagement and enhance their willingness-to-pay such taxes.

There is an excellent volume on property taxation in Africa edited by Franzsen et al. (2017). The first and second chapter (with the volume editors as authors, plus Roy Bahl on the 2nd chapter) give an accounting of the myriad forms of property taxation, the issues in administration of the tax, the institutional issues governing how rates are set, which level of government is the recipient of the revenue and the like. The other chapters give a detailed picture for most African countries. Here we simply give an economics perspective and summarize a few major issues.

While property taxation is a major revenue source in developed countries, especially for local governments, it is vastly underutilized in Africa. As noted in the introduction, in a set of 15 OECD countries, all property tax revenues add up to typically 2.65% (the median in the sample) of GDP with the USA and UK being at 3.21 and 4.23 respectively in 2010 (Franzsen et al., 2017, Table 2.1). In Africa the average share is just 0.38%, with 15 countries at 0.10% or lower and only 3 having a share greater than 1% (Franzsen et al., 2017, Table 2.2). A dynamic issue is that as cities grow they need to finance greater public good provision. City growth leads to property value growth. Without a viable property tax, these capital gains on property go to landowners, which may be a small fraction of the population, without some reasonable portion going into public coffers to finance public goods for the general population.

Why in sub-Saharan Africa is the tax so underutilized? As we will discuss, the answer has several components varying by country: limits on the base and what can be taxed in different circumstances; lack of implementation and institutional structure for assessment and collection; and most critically lack of enforcement and very poor collection.

What is the property tax? Franzsen et al. (2017) lists an array. We focus on three main forms of the property tax: a tax on land, a tax on all property (including the land) on a plot, and a tax on income from property.¹⁹ A land tax can be a flat unit tax on unimproved land or effectively a poll tax on each plot. Of great academic interest is a 100% tax on the implied value of "improved" land, which is known as a Henry George tax.

¹⁸In highly decentralized countries like the USA, people are viewed as making location decisions to move across localities within and across metropolitan areas to sort into the community that offers them the tax-service package which most appeals: "to vote with their feet" Tiebout (1956).

¹⁹Some of these are what economists call turnover taxes: distortionary taxes on the sale of property, which discourage transactions and require a central registry of transactions.

In the economics literature, the early theorems (see Flatters et al. 1974) and subsequent urban versions (Henderson, 1977) established that optimally set public goods in an optimal size city could be financed entirely from rents on land in the city (above the rent in the alternative non-urban use in agriculture). If the city taxed away all “surplus” rents on land, that would finance the an optimally set local public budget without distortions. Although the original models underlying these notions are static, so rents and value are used interchangeably, there is a dynamic version in Henderson and Venables (2009). Of course, this may be viewed as an esoteric theorem. One issue is that precisely assessing the implied rents on land, where what one observes is rent or value on the whole property, not land alone, is a difficult task. To get even close requires fairly sophisticated statistical work for local government agencies.

As a result, and to increase the tax base, what is taxed is typically the value of property. While property can include moveable items like cars and less moveable items like production equipment, our focus is on the more common base of structures and land.²⁰ In some circumstances, it is the observed rental income on properties that are leased to tenants which is taxed.²¹ Already this gives many alternatives, taxing stock values, flow values, and different types of base; all of these are covered by African cities. Often the recommendation is to simplify the tax system and administration and to enhance the base, which generally means to tax property values.

Even just taxing property values is a massive undertaking. First the assessor needs to know where all properties in a city are, in order to have a cadastre with a description and valuation of all properties. If there is no central registry of properties, then the city in essence needs to gather the information and create one. While we noted above that registries are critical to having private property rights, they are critical to having effective taxation. This is a central issue in Africa given the huge array of land rights described above. Generally, only formal lease and freeholds will be in a registry. Moreover, trying to tax land held under customary rights is difficult, because ascertaining and proving true ownership is non-trivial. Second, especially where customary rights are related to tribal or kingdom rights, there can be major political issues as to the rights of assessment and to whom taxes belong (Franzsen et al., 2017). In Francophone countries where property taxation powers may lie with the central government, there are further logistical issues in establishing a national registry, for land whose local tenure structures and political issues may limit implementation by a central authority.

Even if we assume the local government has the authority and the credibility to tax land in all uses including informal, in many cities, the issue is how to establish the actual tax base, apart from the difficulty in building a registry detailing who would be liable for such taxes. Knowing the base requires a mapping of all plots and buildings. Some cities have used aerial photo or drone data to derive all building footprints, so the locations of all properties are known. This avoids corruption arising from sending people to the field who are paid off to ignore certain buildings; and it adds certainty as to where all buildings are. The state can then pursue two potential routes. It can train and employ assessors who visit all properties and establish an evaluation based on comparables, assigning values based

²⁰A related tax involves value capture: when a city does a localized improvement (new road, new BRT stop, new park, new school) values of nearby properties may go up and there can be an assessment on this increased value to help pay for the investments whose benefits are very localized.

²¹In principle, for owner occupants, the inferred potential income could be taxed.

on similar properties that have sold recently. Alternatively, the more modern method is to send teams to the field to record the features of every building, such as number of floors, visible utility connections, wall and roof materials, lot divisions and the like. Given this recording of attributes, the assessor's office can gather price and characteristic data on recent sales, form and estimate a hedonic regression model, and predict sales value. They can then apply the regression to all properties and predict out of sample. Ideally the regression would be done separately for different neighborhoods of a city. The difficulty in doing this is getting the sales data, which requires a registry with transactions prices and would mostly miss the informal sector. To acquire sales data, another possibility is to use listing data, rather than final prices. Cities like Nairobi for instance have websites with listing data for formal sector buildings, but Nairobi has a highly privatized market with a large formal sector. For informal markets, listings and transactions are generally also informal, and gathering listings is more difficult. It is no surprise that cities simplify to have an assessment on lots sizes, or resort instead to more of a poll tax on plots.²²

There are of course other methods, such as self-assessment where owners (somehow identified) declare the value of their property, and the authorities have the right to seize the property at the declared price. Self assessment in many places would be politically impossible and subject to manipulation; and, as throughout, informal properties present a challenge.

Once there is an assessment for as many properties as possible in the city, a tax rate needs to be set, billing to occur via messaging or mail, and collection to occur. Collection is the major end-of-the-line obstacle that developing countries face. In developed countries like the USA, enforcement and collection is given by the credible threat of seizure and sale of the property to garner the revenue on back taxes. Unless the taxes are so high that people are willing to abandon their property, the credible threat of seizure ensures compliance. In less developed countries there are two problems: first, the political will to have strict enforcement, and, second, the ability to identify owners of property in order to legally seize properties and sell them. Such power of enforcement will generally, again, require a land registry. An alternative enforcement process would be to lock-out all people using a building, such as in Kampala where the state can in principle chain-up all entrances until taxes are paid, though this does not seem to be a routine practice.

The result is massive non-collection of assessed taxes, where maybe 8-10% of properties comply, or pay, and where the collection rate on taxes paid as a fraction of taxes assessed might be 15%. For example, in Nairobi county, Ayubu (2015) calculates a compliance rate of 7% and a collection rate of 16% for 2014/15. The tax involved is a land tax and covers both the formal and large parts of the informal sector. Another example is Kampala where rental incomes are taxed. In 2019/2020, the compliance rate at the due date was 8% and the collection rate was 23% (Regan, 2020). This is after considerable effort by the city authority to link benefits to taxes and to campaign for voluntary compliance, as well as with the probably not very credible threat of lock-out for income-earning buildings. Regan (2020) describes efforts to improve valuation procedures and collection, with experiments in shaming of high-income non-compliers being contemplated. In Lagos, Paice (2015)

²²When the tax base collects income from rental units, such incomes are generally not observed. Then the city has to infer the income as in Kampala, again potentially based on regressions analysis, where some incomes are observed and others inferred. Or again, one can assess values and assign and tax the presumed rental income potential as, for example, a fraction of the value.

writes glowingly of efforts which increased property tax revenues in Lagos five-fold in 12 years, with an improved registry, billing, and a campaign to link taxes to benefits; but he does not discuss actual compliance rates.

It seems compliance on a large scale will only come with credible enforcement threats to seize property or lock-down buildings. Coville et al. (2020) relatedly describes an experiment in Nairobi slums that implemented a credible threat of shut-off of utilities if bills went unpaid. The threat induced enormous compliance, furthered by actual shut-off and subsequent compliance by non-payers. The experiment however was highly political in nature, with fear of unrest if compliance was enforced. Nevertheless, the intervention was successful, and a similar strategy might work well for property taxation. Still, for property taxes, there remains the issue of how to operate a system when so much property is under informal rights, with no registry as to who owns what.

5 Research and Policy Issues

If the various institutions fundamental to urban land markets are left undeveloped, with Africa's rapidly rising urban population, there will be serious consequences for urban residents. We have considered the role of several public institutions core to the operation of cities. Crucially, property rights are essential to accommodating population growth by encouraging private investment in cities. Institutional limitations present in property tax operations leave a key and relatively untapped financing opportunity for city governments in the midst of ever-increasing demand for public good provision. Land market failures affect the ability of cities to plan and manage externalities and to put land into the highest and best use.

Given this discussion of the institutional issues at risk, this section provides policy recommendations, shadowed by political economy concerns. We examine the costs and political considerations relevant in the presence of corruption and weak institutional environments common to the region. Improved data collection and further research are necessary to design a transition towards private property rights, better planning, and improved property tax collection. We conclude accordingly with suggestions for future research that may better inform the potential costs and benefits of different regulatory interventions.

5.1 Policy issues

To the extent that African cities can move away from a dual or often a tri-property rights system to one with fully registered and transparent leaseholds or freeholds. the better markets would work in general. The key is to incentivize people to invest intensively on land with highly durable structures, by removing the risk of expropriation, by having the ability to fully mortgage or construction land finance investments and acquisition, and by having the full rights to sell and transfer. There are many caveats to how such a system would work and the transition process to that system.

Transition should avoid land-grabbing whereby tenants with customary or other informal rights are displaced and their land allocated to large holders for development. “Owner-occupiers” who are not renting from others and have some form of possessory rights should be allowed to purchase titles. Greenfield land could be allocated via auction or other mechanisms to developers who are offering planned communities for self-build and already built communities. There of course is a demand for formal rental housing, which leads to ownership concentration; but in most countries of the world such demand and concentration is limited. As cities spread into rural areas, individuals and developers can buy land from rural owners, but again those rural owners’ rights should be formally recognized, so they can sell at market value and not be expropriated.

There are many nuances here in this prescription and we note a few. First, those who have possessory rights still need to have their land surveyed for titling. While people can record property outlines by walking plot boundaries with handheld devices, the recording of these boundaries is still not accurate enough to avoid later boundary disputes. That still requires surveying. The cost of surveying is much cheaper if done on a neighborhood scale by the government working with residents and neighborhood officials. Title fees should be kept to actual costs incurred and not used to raise revenues, so people actually take them up. For new formal construction or purchases, if mortgage financed, there should be sufficient legal oversight of any foreclosure process to prevent institutions from using foreclosure to land-grab and expropriate.

Critical to all this is a transparent and complete registry of all urban land that identifies each plot, ownership ID, encumbrances, liens, last purchase price, and the like, which can be combined with a cadastre that gives assessed values of land and buildings. The basic facts should be in an online register that at least maps and notes current owner, plot outline and location, and last purchase price. Transparency helps stop eliminate corrupt expropriation via title switching and manipulation of non-open records. A proper registry also reduces the cost of home ownership for lower income families who would otherwise need to invest heavily to try to shore up their rights against illicit expropriation.

Achieving these goals faces major political hurdles. Land and property ownership is the basic and traditional way wealth is held in developing countries and there is a high ownership demand by the wealthy, who then also receive significant capital gains as urban property appreciates in value with city growth. Expropriation and land-grabs are a cheap way to obtain these desired assets, and reforms removing corrupt practices will be politically opposed by major political actors. On the other side is the general population, most of whom also want assets and to owner-occupy. Political solutions may be enhanced by democratization, although there is little hard evidence to support that notion. From a political standpoint, nevertheless, offering the wealthy transparency and enhanced (and cheap) security on their own holdings, as well as promoting a better operating property market, should benefit them in the long term, so that they support a transition to transparency and full private rights on all property.

Such a move would benefit urban finances. There are four key barriers to a working property tax system: (1) having a registry of all properties in the city with identified owners liable for assessed taxes (which also requires all properties be surveyed and boundaries recorded); (2) a transparent and “fair” assessment system; (3) an enforcement system where delinquent properties can, with due process, be seized by the city or non-payers

can be locked out of their property; and (4) increasing compliance by having tax payers realistically perceive a connection between taxes paid and public services received. All these reforms face major hurdles in situations with weak governance, corrupt courts, and other weak institutions. With respect to obtaining a full cadastre, assessment can be done to estimate the value of holdings, as in many developed country cities, via hedonic regression techniques—specifically, a neighborhood regression analysis of recent sales prices as correlated with a full set of property and building characteristics and perhaps key amenities. However, these data must again be recorded and revealed to owners, and include a transparent dispute process. With respect to the third key barrier, enforcement is difficult to properly legislate because, in a corrupt regime, seizure of delinquent properties can be used to expropriate and then reallocate properties, or lock-out can be used to solicit bribes. To thwart the expropriation incentive, cities like Chicago went so far as to demolish all buildings seized for delinquent tax payments. More experimental evidence is necessary to ascertain the efficacy of trying to induce more voluntary compliance, such as through campaigns to link benefits to taxes paid, or initiatives that herald payers and shame non-payers.

On the planning and regulation side, we are in no position to try to recommend how to do proper city-wide planning. But we do note that African cities suffer from an acute lack of trained planners. There are several ad-hoc and key policy issues. First is the adoption of realistic regulations that recognize the limited individual family and proprietor demand for land and buildings. In their present state, colonial-era regulations—such as those setting excessive plot and building footprint sizes, excessive limits on floor-to-area ratios, and allocating excessive amounts of land to industrial use especially nearer the city center—need to be revised. Apart from top down bureaucratic imposition of inappropriate norms and inertia in ending colonial norms, it is difficult to discern the political opposition to improving the regulatory process. However there is the problem of how to carry out a regime switch from regulatory avoidance to compliance under better formulated regulations. Grandfathering of past violators of poorly designed regulations and restoration of full property rights is essential to city development, but then credibility in enforcing new and better regulations is also essential.

In terms of urban transport infrastructure there is a choice to be made: as incomes rise, either cities can become automobile dependent and more sprawling, or they can invest heavily in public transport infrastructure such as rail and bus rapid transit systems that, linked-in with proper city bus routes, can achieve greater compactness. This is an age old debate without a clear research case for either system in terms of city growth potential. Looking to the future where fossil fuels may be phased out, there is an opportunity for African cities to invest in transit systems and compactness. That starts with laying out these systems now and planning their extensions into areas that are currently greenfield but soon to be occupied. Since Africa is far from widespread automobile use and affordability, building out transit systems today offers much greater immediate ability to commute longer distances, while bringing about safer commuting, especially for women.

Finally on slums, it seems a key issue is to establish property rights in older slum areas near the city center to allow these areas to be redeveloped into higher and better uses. Of course that implies displacement of slum residents, as happened in developed country cities over 100 years ago. Politically, there would in some cases be a set of quasi-(il)legal,

politically well connected landlords who do not own the land but may need to be bought off. Research suggests the gains in land values from moving to higher and better uses can be so great as to pay off the illegal landlords and still have vast sums left over to fully compensate those displaced for relocation and social and economic displacement costs. In either this case or in the case where slums are occupied by “squatters” with some type of de facto possessory rights, a simple and equitable solution is to give current occupants full property rights, with developers then able to buy them out. (In multi-occupant buildings, full property rights may be effectively condominium rights.) Such an equitable plan may be politically unacceptable in many cultural situations, even if illegal landlords are paid off, but at a minimum it seems important to fully compensate those displaced. Of course that would be a loss in city or developer revenues, a political economy issue that has plagued developed countries. One only has to read Martin Anderson’s “Federal Bulldozer” (1964) to see how these issue played out in the USA.

5.2 Research questions

At the heart of the urban problems discussed in this chapter on sub-Saharan Africa are the lack of well operating institutions in land markets. Most cities have little land under private ownership with proper and transparent registration. Uncertainty, corruption, and rent seeking dominate markets. As such, research that documents in a dynamic context the overall impact on development and intensity of investment of moving to private property rights is important. It is also important to ask to what extent, informal institutions can substitute for formal in a context with high stakes, intensive investment. An example would be whether Mozambique’s enshrinement and semi-formalization of customary rights offers the proper investment incentives, knowing that some intermediate forms as in Tanzania do not seem to work nor be valued. There are two parts to that question. Do strongly enhanced informal rights provide sufficient protection for owners to upgrade and maintain their houses in current use? Second, if an area of a city is ripe for redevelopment into more intense use and investment through reconstruction, such as areas near the city center, are these rights sufficient for developers to proceed with acquiring land and investing intensively in new buildings? A related question concerns citizen involvement and the degree of revealed associated demand for formality. What are people willing to pay for formal titles, whether they are current residents or the developers who want to buy them out? Some experimental work in Tanzania has looked at aspects of the issue, but more could be done and it would help to look beyond that particular context.

A concern in advocating a move to formal private property rights is the process under which that occurs. How do we design transformations that are not subject to high-jacking and land-grabbing, where corruption allows a handful of private firms and/or rich families to accumulate huge shares of land in a city? We noted the high rates of renting, as opposed to owner-occupancy, in many cities, whereby ownership must be concentrated in the hands of a rich minority. Did this arise from corruption in the market and/or poor institutions making owner-occupancy costly? To what extent does this contribute to rising wealth inequality and indeed can we document concentration of ownership in urban land markets?

With the UN identifying gender equality as one of the Sustainable Development Goals and an integral measure to combat poverty, a major equality issue concerns legal or customary limits on females appearing on titles as either a joint or sole owner. Because land is a key element of asset ownership in Africa, securing land tenure for women can greatly increase their agency, well-being, and within-household bargaining power; in turn, these key aspects of gender equality can have economy-wide implications for productivity, poverty, and outcomes for the next generation (Gaddis et al., 2018). With exclusionary tenure leaving women and in particular widows vulnerable to eviction, women are deterred from investing in land; Dillon and Voena (2017) demonstrate that weak inheritance rights deter even currently married women from land investments. However, most research on gender inequality in relation to tenure security has been done in rural areas, with little conducted in urban areas. Prior research does suggest that including women on joint titles is not something to which males object; but how attitudes get shaped and can be changed is also an important question.

Relatedly, research on how to improve tax compliance is desperately needed. Where tax compliance is influenced by attitudes and cultural norms towards corruption and trust in the government, more research should be done on what can be done to promote confidence and alter norms on evasion (Fjeldstad, 2016). Likewise, research on the efficacy of different institutional reforms and payer buy-ins to increase compliance is necessary. Experiments that show the impacts on collections of information campaigns, shaming of non-payers and positive profiling of compliers, enforcement via threat of property seizure or lock-outs, and the like would help local governments design policies to improve collections.

Another area of research concerns planning, regulation and infrastructure. Most research work on regulation cherry-picks poorly done regulations and critiques their impacts. Generally, a more nuanced approach looking at both good and bad regulations would be helpful. However, in a weak institutional environment with little enforcement, we do not understand the costs of poorly designed regulation. Touching on the inappropriate colonial-era regulations described in Section 3.1 for example, in which contexts does evasion of poorly designed regulation contribute to the quasi-illegality of holdings, which impedes redevelopment and appropriate intensive investment? Are there examples of successful regime switches from inappropriate or flawed regulation to more realistic policies that deal appropriately with externalities and have some bite? That is, can governments grandfather in violations of past regulations, but with information and political campaigns still credibly enforce new and better made policies governing future construction?

By the same token, more research must be conducted to understand the costs and benefits of different planned neighborhoods. Greenfield planned neighbourhoods are a tool increasingly used to help plan cities and offer better long term neighbourhood environments. In particular contexts, research has confirmed the benefits of planned neighborhoods, where there seems to be excess demand for planned neighborhoods in a city by the middle and upper classes. However, can we successfully plan neighborhoods designed for lower income residents, or do regulations make these too costly, forcing the poor into informality and slums? There are both public initiatives which are constrained to follow city regulations and private ones which may have more freedom, which can yield both costs (uncontrolled negative externalities) and benefits (flexibility). Research on the design of such programs and the comparison of public and private initiatives is needed to

help city officials adopt better designed strategies that are realistic and inclusive.

Research on urban planning begs the question of what the role is for slums in low income contexts with fast growing cities. Researchers have argued that slums provide land intensive and flexible housing at a cheap cost, where land is cheap as on the edges of cities and where, indeed, new slum development is prevalent, even on privately owned land. The more thorny question concerns older slums on very valuable land near the city center. Typically here land ownership rights are ambiguous and contested, so land is trapped in low value uses such as slums. That defines two research questions. How can solutions be designed that are politically possible, to free up this land for redevelopment and what are the equity implications? Second, such slums are the target of slum improvement programs for obvious humanitarian reasons. Do such improvements persist and make a long term difference? Do these improvements, as a negative side effect, tend to enshrine the slums in current use and put off their desired redevelopment in the longer term?

With respect to transportation, extensive literature on the impact of major transport investments on city development exists for the USA, China, Spain and the like; yet, there is no research published specific to Africa that has achieved a similar level of empirical and theoretical rigor. Compared to its aforementioned counterparts, Africa is at a different state of automobile use, and cities have the potential to put into place major rail and bus rapid transport [BRT] networks. Moreover, these transportation networks can today be extended into newly developing greenfield areas as cities expand outward with population growth, at much lower cost than retrofitting in the future. For cities like Dar es Salaam, Addis Ababa, and Lagos that have started on these investments, tracking these developments and their impacts is essential to inform design and implementation of future projects in these and other cities. Will such investments help transform these cities, as they did London or New York, from being a “collection of villages” into cities where people can commute longer distances, and work places can cluster more in areas like the downtown? Relatedly, analysis of modal choice and trade-offs (private bus, public bus, rail, BRT, auto, walking or bicycling) at different stages of income and city growth would help guide policy makers as to the modes on which to focus investments.

Finally, to answer these research questions requires the data to carry out the research. First, countries should be encouraged to either carry out regular and more detailed population censuses, or have large samples of the population separately surveyed to, for example, gain detailed information for specific policy issues. Conducting economic censuses would help inform policy makers of what goes on in their economies and help keep better statistics. However, institutions like the World Bank can also play a role in helping assemble and maintain “big data” related to urbanization and the critical issues discussed. The Bank can support needed and focused scientific research. This is a role the Bank played historically but one which seems now much muted.

Big data includes leveraging social media and cell phone data to track commuting patterns and other aspects of urban activity. Importantly, these efforts also include the use and analysis of high resolution satellite imagery both with-in cities and over time, to detail all construction and buildings with their footprints and heights, aspects of quality, and their alignment and regularity of layout. This is also essential for risk management and disaster relief. Such data can be used to identify slums, where development is moving, where redevelopment is occurring, and of course the response to various programs and ini-

tiatives. The ability to conduct high quality research and effectively inform policymakers relies on these tremendous data collection efforts and support of research.

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