Bidders Premium on Government Land Auction: Floor Price vs. Winning price

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Abstract

The land management and governance system is the underlying cause for capitalizing the opportunity or facing the challenge of rapid urbanization. The urban land lease policy of Ethiopia, least urbanized but fast urbanizing country, is considered the most influential policy that determines the investment environment in the cities. It lays the foundation for acquiring 'land use right' through auction or negotiation. This paper quantitatively examines its implementation using data obtained from the urban land auction market in the country's capital. The study found a very high divergence between the auction guide-prices (set by the government) and the sale prices (offered by land developers, investors), where the latter is significantly higher than the former. Besides, the variation is found to be significantly explained by a number of factors including floor price, plot size, plot use type, plot grade, plot location, and time of the auction. The study found that the urban land market is not majorly driven by economic rational. The land market system is not only highly exposed to speculations but also DRAFT its urban land acquisition is majorly a secondary market, with no policy-ground. As a result, the market is characterized by high inefficiency and weak institutional capacity. The study also identifies feasible options that consider the unique features of Ethiopian cities for efficient and effective urban land management so that they can capitalize on the opportunities from the rapid urbanization process in the country.

Key Words: Urban land lease policy, Ethiopia (Africa), Urban land policy, Land auction, Land premium, Least-squares estimation

JEL Classification: Q24, Q15, R15, and R52.

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INTRODUCTION

Because land holds a unique and pivotal position in the process of economic growth and poverty reduction, the nature of its property right is very crucial. More importantly, the debate on urban land policy fundamentally originates whether or not it should be based on principle of private or public ownership. Evidence revealed that urban land policy is a complex undertaking and not only vary by country but also that such a policy must involve a large number of policy instruments, carefully designed to be mutually supportive (Doebelej, 1987). This notion has an empirical foundation from the experiences of the countries that adopt private or public ownership of land (Hong and Bourassa, 2003; Deininger, 2003; Deininger and Chamorro, 2002). Land in Ethiopia is constitutionally state owned, and the right to use land is separated from its ownership, with 'use rights' given to individuals, groups (communal holdings) and private entities (FDRE, 1995). The constitution allows the state to continue owning land (as means of production) creating a tradable claim on land, the 'use right'. Following the ratification of the constitution in 1995, various policies and policy instruments were formulated to promote investment and urban development. The urban development policy/strategy (MoUDC, 2013) and the urban land development and management policy and strategy (MoUDC, 2011) are the two key policies that guide the management of land for investment and urban development. Among the policy instruments, Proclamation 455/2005 (which guides the expropriation of land holdings for public purposes and payment of compensation); Proclamation No. 721/2011 (which directs the implementation of the provision of lease holding of urban lands) and Proclamation No. 818/2014 (which establishes the foundation for urban landholding registration) are the key institutional arrangements that have direct implications for the use of land for socioeconomic development and promoting private sector investment in the country. These reforms issue the authority to sell land and determine the terms of redevelopment in the nine federal states and two city administrations of the country. With the aim of addressing lack of transparency and improving land market competitiveness, the land lease regulation stipulates that land is transferred through negotiation for industrial investment and through auction to other developers.

Whether the reforms can help the country to capitalize the opportunity from or face the challenges of urbanization[2] has been an open policy question and a subject of discussion among policy makers, development partners, scholars and the private sector (World Bank, 2016: 2014; Zelalem, 2014; Zemen, 2013; Belachew, 2010; Bacry, 2009; Alebel and Genanew, 2007a; 2007b; Peterson, 2006). The various studies revealed that the effect of such reforms is still a subject of interest. On one side of the argument, there have been substantial improvements in big cities such as Addis Ababa[3]; which has been characterized by dilapidated structures, congestion, environmental related problems and a poor urban image, and shortage of quality infrastructure and basic services; and is now in better conditions than ten years ago. Besides, unlike the period before ten years ago, the city's development has started to be implemented with well-prepared plans and in a well-coordinated manner. Such positive changes are due to two important phenomena of the reforms. First, the lease policy influences the efficient management of the land through its effect on the value of land. As a result, land price has been continuously rising in the urban areas[4]. Second, revenue from land lease has become a significant source of financing for local development in urban areas of Ethiopia[5]. Peterson (2006) finds that land leasing has become the single largest source of municipal revenue in the country, ranging from 21 to 45 percent of the total revenue and 77 to 145 percent of the total capital spending of the country.

On the other side of the argument, there has been a debate on the shortcomings of the reforms. Peterson (2006) argues that even if revenue from land is becoming an important source of financing infrastructure in developing countries, such source can introduce a new set of risks that can profoundly affect fiscal management. The author indicates that cities are unable to obtain revenue growth from other sources, which risks their future recurrent budgets from other sources. Besides, relying municipal revenue primarily on land leasing may introduce unprecedented degree of volatility in municipals' own-source of revenues. On a related study made by the World Bank, the revenue from land is less than its true value in urban Ethiopia. Moreover, the lease regulation not only restricts the right to transfer use right but also it is not

linked with the urban development strategy of the country (World Bank, 2016). As a result, the reforms give little concern for sustainable expansion possibilities and only add inefficiencies in land utilization. Firstly, there is a marked gap between the demand for basic services and the supply of those amenities by the city administration to keep pace with the expectations emanating from the scale of change that the cities is undergo. Secondly, urban land for domestic investment has emerged as a key bottleneck in Ethiopia. As of June 2016, about 6000 domestic investors are in a waiting list only in the capital city, requesting land for investment purposes. This does not only discourage private investments (and thereby employment opportunities) but also it, coupled with the limited supply of land, has created distortions in the land rental market and a price hike.

The findings and conclusions from these previous studies are based qualitative data, and hence are open to debate as their interpretations are often subject to individual judgments. These studies, however, are important as they pose important policy questions that need to be addressed quantitatively. The only exception is the study made by Alebel and Genanew (2007b) who quantitatively analyzed the land market. However, their study was made prior to the formulation of the land lease reforms. Besides, all of the studies do not consider the demand side of land for investment, which determines the land value. The demand side of urban land management is an essential element in promoting investment and enhancing the contribution of cities for economic growth (Collier and Venables, 2013). Absence of such consideration is explicitly reflected in urban areas of the country as discussed above.

The implication is that the land lease policy still requires reexamination of its constraints and opportunities with the aim of devising appropriate measures and strategies for action. To this end, unlike previously made studies, this study analyzed both the supply and demand side of the urban land lease policy in Ethiopia. With regard the supply side of land for investment, the paper critically reviews the land lease policy, its institutional arrangement as well as its governance system.

With regard to the demand side, land pricing policy is the primary component for understanding the demand side of investment and the determination of land price, which is the key component of an appropriate incentive for balanced and coordinated investment. Consequently, this study quantitatively analyzes the fundamental importance of the value that investors place on land characteristics.

This study adds value to the limited literature about the urban land market. The auction method for selling properties has been studied extensively in the literature (c.f. Allen and Swisher, 2000; Dotzour et al., 1998; Mayer, 1998; and Lust, 1996.)[6]. However, most of these studies focus on property markets rather than land markets. The exception is the study made by Gwin, Ong, and Spieler's (2005) who investigated the effect of auction market mechanism on the value of land using, unlike to our study, an experiment. Moreover, our study adds to the empirical evidence on land auction market in urban Africa. Despite the fact that Africa is rapidly urbanizing, there is little empirical evidence on the performance of land auction market and the determinants of land price premium in the continent (c.f. Abdul and Alirat, 2009; Amidu and Oyedele, 2008; Aluko, 2007). The issues addressed in these studies include residential properties and auction sale valuations accuracy[7]. Thus, our study is an addition to the existing limited empirical evidence about the urban land auction market in Africa, in a case where land is constitutionally state owned and land developers has only 'use rights'.

The following section briefly reviews the literature related to this study, focusing on the land lease system in urban Ethiopia. The methodological framework adopted in this study is presented in section three. Section four describes the type and source of the data used, and presents the empirical results. The final section summaries the findings and draws the conclusions of the study.

URBAN LAND LEASE SYSTEM IN ETHIOPIA

1. Review of the Urban Land Lease System

Ethiopia formulated various proclamations related to urban land use. Proclamation No. 80/1993 is the first proclamation related to the urban land lease system enacted since the 1991 reform. Following this, the country has enacted Proclamation 271/2002; and 721/2011[8]. These proclamations have social and economic goals that are expected to be achieved through their effective implementation. In these proclamations, appropriate land administration needs to be seen in the lens of sustainable rapid economic growth. In this respect, efficiency and responsiveness to the growing demand for land are key issues in the land market. However, emphasis is also given to consider equity as a prime motive in the land administration. The proclamations aim to realize a robust free market economy and building of transparent and accountable land administration system that ensures the rights and obligations of the lessor and the lessee.[9]

Accordingly, the lease policy states that the right to use urban land (through lease) is permitted to realize the common interest and development of the people. In this regard, the lease policy is expected to address the development challenges[10] in urban Ethiopia (Alebel and Berihu, 2017). According to the World Bank, the fundamental causes for development problems in urban Ethiopia are land management, governance and municipal finance (World Bank, 2016). The effective implementation of the regulations is directly related to the key features of these regulations, which explicitly defines (among others) the scope of application, property rights related to transfer, ways of acquiring new development land, grace period, lease fee payment modalities, and duration of lease period.

As noted in Alebel and Berihu (2017), a critical examination of the policy and the institutional arrangement of the land acquisition system for investment (Proclamation No 721/2011; Regulation No.14/2004; Regulation No.4/1994; and Regulation No.3/1994) reveals that at least three main modes are practiced to access land for business purposes in urban Ethiopia: rent from

private sources, lease holds and public allotments. Each of these modes has its advantages and shortcomings. For instance, while the land rental market is characterized by a very high rental prices and uncertain contracts, the main problem with land lease hold arrangement is that the land supplied for bidding is very limited hence, it is quite competitive and expensive for investors. There are also implementation problems in transferring land to lessees. Though public allotment has an advantage of being quite cheap, cities have quite limited amount of land that they can allot. Moreover, the allotment decision often takes a long time (usually up to 2 years) and thus uncertain.

The urban land lease regulation stipulates that acquisition of urban land is only possible through the land lease market system or negotiation[11]. However, in practice these are not the only land acquisition mechanisms in urban Ethiopia. Land is also acquired through the secondary market in which individuals who obtain/lessee a land through auction transfer the land to a third person through a bilateral agreement. Such secondary markets do not have policy or regulations. The land acquired through secondary market is extremely expensive and unregulated, and is a concern in many ways. Rental cost constitutes a large part of the firms' costs, which renders them uncompetitive. Leasing from private providers often creates uncertainty as the landlords frequently increase rental price or unexpectedly break the tenancy agreement. There is also uncertainty about the legality of the lease/rent. Price setting is at the discretion of the land lord. Landlords often force the tenants to pay a down payment for an extended period of time, which reduces the working capital of the tenant/investor. There appears no efficient contractual arrangement that binds both the supplier and customer. More importantly, private rental is not an option for many manufacturing activities that require large tracts of land.

This study also reveals that the size of the land that is available for each tender is very small in comparison to the demand. The limited land supply coupled with discretionary power of government officials to restrict, tighten or widen access to land creates a hike in the rental price; thus, attracts more speculators into the bidding process. The administration is not able to

differentiate the speculators ("flippers") from the genuine investors ("real land demanders") with a genuine interest in leasing a land, as opposed to "flippers". The bid process is largely dominated by speculators. These speculators tend to increase the bid price, which crowds out the genuine investors. The speculators retain the land for some time and resell their use right at even higher prices. This has proven to be discouraging to the genuine investors and the productive sectors. According to the World Bank (2012), land allocation is the second most area of corruption in Ethiopia following customs services. The most corrupt activity in the land sector occurs at the implementation stage, suggesting that the level of corruption is influenced by how policies and legislations are formulated, implemented and enforced. Overall, the above discussions clearly show that corruption, non-transparency and unfairness have reigned in the system and, created a means of exploiting the system by a few urban speculators and brokers. The next subsection presents the implementation mechanism of the land auction system.

2. Land Auction Implementation in Urban Ethiopia

In Ethiopia, each federal state has the authority to establish an appropriate body that has the power to administer, develop urban land and advertise lease tender[12]. Regional states or city administrations release public land for private developers through allotment or auction of land leases. In Addis Ababa city administration, the Land Banking and Transfer Office is mandated to transfer land through tender or allotment. The office is responsible to auction land for different development activities. It prepares a land lease-bid-offer form, which a bidder should buy, then fill it out and submit it to the office during the tender period.[13]. Plots are released for auction openly at the government's benchmark (or floor) price; then the bidders submit their offer price for the particular plot in a closed envelope. There are no restrictions on the eligibility of bidders and the auctions are open to all interested developers. Each auction site has specific land use parameters to be made public through media and to be posted on the city's bi-weekly newspaper 'Addis Lisan'. The location (sub city), type of development, floor price, lease period, lease

payment period, lease grace period, etc. for each auction site are accessible to the bidders. The auction winner will be decided based on the highest price offered per M^2 and the percentage of the down payment. Once the winner is announced; the office concludes the lease contract with the winner, hands over the land, and collects the lease payment based on the lease contract. Land auctions in the city, therefore, can be characterized as common value auctions in that the developers' valuations of the sites are based on the same land use parameters and the same underlying market conditions.

Ideally, many factors contribute to the value of a plot of land. Physical attributes of the plot are one of the key factors. These include location, plot size, topography, access to basic social services/infrastructures, and environmental features such as absence of bad smells, noise, etc. The regulation that governs land management and administration such as the type and amount of taxation, zoning and building laws, planning and restrictions are also key determinant of land value. The social factors include population growth/decline, changes in family sizes, age, attitudes toward law and order, and prestige and education levels. The economic forces include value and income levels, growth and new construction, and vacancy or availability of land. It is the influences of these forces, expressed independently and in relationship to one another that contribute the valuation of land.

Given this as a general framework, the city administration sets floor prices based on the development condition of the specific site. This condition gives weights to the topography of the site, its existing and planned engineering and economic infrastructures, its access to social and administrative infrastructures, housing condition and urban plan of the city.[14] Moreover, the floor price of a specific plot in the city depends on whether the plot is in the Central Business District (CBD, areas with access to transport and communication that attract more people and socio-economic activities), Zone of Transition (TRZ, areas in between the CBD and SUR), or in Suburban and Urban-Rural Fringes (SUR, areas that are good for residence).

According to the lease hold regulation, the tender should contain the benchmark/floor price of the plot as well as information on at least the plot size, plot use type, grace period and minimum

capital requirement. These are determined by the city administration. As stated in the regulation (proclamation 721/2014), grace period is determined based on the type of development on the plot as well as the conclusion of the lease contract and completion of the construction period. The construction completion period is from 1 to 2 years depending on the size of the construction. This can be extended up to 2 years and 5 years for small and large construction projects, respectively. The lessee has the right to transfer or pledge the leasehold. [S]he can use it as collateral or capital contributions to the extent of the lease amount already paid. [S]he has also the right to transfer prior to the commencement or at half completion of the construction. Moreover, the land lease period varies depending on the level, sector and type of development on the plot. It is 99 years for residential, science and technology, and research purposes; 15 years for business like urban agriculture use. In Addis Ababa city, in particular, the lease period is 90 years for social, 70 years for industry, and 60 years for commerce and others uses. Even if the city administration sets the minimum amount of the down payment and includes in the bid announcement, bidders should also state the amount of the down payment as this is one of the key criteria for selection of the winner. The regulation states that the amount of the down payment may not be less than 10 percent of the total lease amount of the plot. While the price (per M^2) offered by the winner accounts 80 percent of the total score, the down payment accounts 20 percent. The lease period may be renewed upon expiry on the bases of the prevailing benchmark lease price and other requirements. Once the bidder wins, [s]he is expected to pay a down payment not less than 5 percent of the total payment, the remaining balance to be paid during the lease payment period which takes into consideration the payback period of the investment. The balance is to be paid on the basis of equal annual installments during the payment term with the prevailing interest on loan offered by the commercial bank of Ethiopia with penalty fee against defaulting to pay the annual payment. From the period 2013/14 to 2016/17, the city administration supplied 3038 plots in 19 rounds of land auctions over the ten sub-cities of the city. Of these, 67 percent of the plots are sold at the time they were tendered, and the rest could not be leased out at the time when they are first tendered.[15]

METHODOLOGICAL FRAMEWORK

1. Data Source and Type

The data set used in this study consists of land transactions made through auctions in Addis Ababa city over the period 2013/14 - 2016/17. In this period, the city administration supplied more than 3000 plots of land in 18 rounds (bid round five to round twenty four) of land auctions[16]. While the city administration provides basic information about the plots available for auction, bidders are required to reveal their personal information including their full name, residence and nationality. The auction tender contains basic information about the plot being auctioned: including its area code, location (both sub-city and 'Woreda')[17], size (in M^2), use type, minimum building requirement, benchmark price (per M^2), lease payment completion period, and lease period. Bidders offer price (per M^2), initial down payment in percent and the total lease price of the plot they bid for. For each land lease transaction, the Land Bank and Transfer Office of the city administration made available the plot area code with its basic information during the tender announcement. This will be followed by the announcement of the winning price with names of the first and second rank winners and their respective offer prices. The 'area code' was used to link the information available for each plot before and after the tendering process. Accordingly, it was possible to compile information on base price, winning price for first and second rank bidders and their name, plot size (in M^2), plot location, plot grade, land use type, capital requirement for construction, minimum down payment, grace period, and lease period for each plot auctioned. In addition to the land transaction data, this study used relevant official policy and land lease holding and other regulation documents from the city municipality and federal offices.

Moreover, other relevant data are extracted from the recent land lease implantation and land market report of the city administration. This enables us to conduct detail quantitative analyses using descriptive and econometric analyses to understand the key features of the land market and the key determinants of the price of land in the city. The richness of the data allows us to assess the relative strengths of the plot characteristic variables on the bidder's land valuation

decision. In particular, it allows us to examine the variation in the land sale price relative to its floor[18] price, and to assess the determinants of the variation if any.

2. The Econometric Model

The initial econometric models used in this study follow that of Abdul and Alirat (2009), Stevenson and Young (2004), Matysiak and Wang (1995) and Brown (1985) whose major focus, unlike to our land valuation study, was to assess the relationship between guide/reserve and auction prices for residential properties. To examine the difference in land sale price relative to its guide price, we used two alternative models (equation 1 and equation 2):

$$ln(FPRICE_i) = \alpha_0 + \alpha_1 ln(WPRICE_i) + \epsilon_i \quad (1)$$

$$ln(WPRICE_i) = \beta_0 + \beta_1 ln(FPRICE_i) + \varepsilon_i \quad (2)$$

The dependent variable (FPRICE) in equation1 is the floor (or guide) price (per M^2) to be achieved for the land to be sold at the auction, and the independent variable (WPRICE) is the winning price (per M^2). Equation 2 reverses equations 1 to use WPRICE as a dependent variable and FPRICE as an independent variable. α and β are parameters of the models, and ϵ and ε are prediction errors. These models are used not only to test whether the floor price acted as a proxy for the final sale price but also to explain the divergence between the floor and sale prices.

The two equations above are estimated assuming that the floor price is determined independently. However, the city administration uses certain parameters. A key parameter that the city's administration uses to determine the floor price of a plot is plot grade. The city's administration ranks[19] plots based on their location, access to infrastructure, and number of stories to be built on the plot, development cost of the area, and the plot-use type. It is, therefore, important to analyze whether or not developers (bidders) consider plot grade when they value a plot. Besides, plot-use type is also an important variable for developers (bidders). The land could be purchased with the intent being for commercial, residential or mixed use; each may provide

the developers with a different expected return of investment within the lease-agreement period. Accordingly, separate regressions are specified for the major plot grade types: Grade III_4, Grade III_3, and Grade III_2. Similarly, separate regressions are specified for the major plot use types: mixed, residential and commercial purposes. Thus, the following pairs of equations are specified for each plot use type (equation 3.1 to 3.6) and for each plot grade types (equation 4.1 to 4.6):

$$ln(FPRICE_{im}) = \alpha_{0m} + \alpha_{1m} ln(WPRICE_i) + \epsilon_{im}\ ; for\ Mixed\ use\ plots \quad (3.1)$$
$$ln(WPRICE_{im}) = \beta_{0m} + \beta_{1m} ln(FPRICE_i) + \varepsilon_{im}\ ;\ for\ Mixed\ use\ plots \quad (3.2)$$

$$ln(FPRICE_{ic}) = \alpha_{0c} + \alpha_{1c} ln(WPRICE_i) + \epsilon_{ic}\ ; for\ Commercial\ use\ plots \quad (3.3)$$
$$ln(WPRICE_{ic}) = \beta_{0c} + \beta_{1c} ln(FPRICE_i) + \varepsilon_{ic}\ ;\ for\ Commercial\ use\ plots \quad (3.4)$$

$$ln(FPRICE_{ir}) = \alpha_{0r} + \alpha_{1r} ln(WPRICE_i) + \epsilon_{ir}\ ; for\ Residential\ use\ plots \quad (3.5)$$
$$ln(WPRICE_{ir}) = \beta_{0r} + \beta_{1r} ln(FPRICE_i) + \varepsilon_{ir}\ ;\ for\ Residential\ use\ plots \quad (3.6)$$

$$ln(FPRICE_{iG4}) = \alpha_{0G4} + \alpha_{1G4} ln(WPRICE_i) + \epsilon_{iG4}\ ; for\ Grade\ IV\ plots \quad (4.1)$$
$$ln(WPRICE_{iG4}) = \beta_{0G4} + \beta_{1G4} ln(FPRICE_i) + \varepsilon_{ig4}\ ;\ for\ Grade\ IV\ plots \quad (4.2)$$

$$ln(FPRICE_{iG3}) = \alpha_{0G3} + \alpha_{1G3} ln(WPRICE_i) + \epsilon_{iG3}\ ; for\ Grade\ III\ plots \quad (4.3)$$
$$ln(WPRICE_{iG3}) = \beta_{0G3} + \beta_{1G3} ln(FPRICE_i) + \varepsilon_{iG3}\ ;\ for\ Grade\ III\ plots \quad (4.4)$$

$$ln(FPRICE_{iG2}) = \alpha_{0G2} + \alpha_{1G2} ln(WPRICE_i) + \epsilon_{iG2}\ ; for\ Grade\ II\ plots \quad (4.5)$$
$$ln(WPRICE_{iG2}) = \beta_{0G2} + \beta_{1G2} ln(FPRICE_i) + \varepsilon_{iG2}\ ;\ for\ Grade\ II\ plots \quad (4.6)$$

Both floor and winning price data are transformed into price per M^2 to adjust for differences in plot sizes (c.f. European Union et al., 2013). The data is then logarithmically transformed to normalize the frequency distribution of price per M^2. This helps to overcome the likelihood of positive skewness of the^2 values. Moreover, these resulting data distribution if the sample contains plots with high per M transformations are required for correct interpretations of the statistics of the regression analysis (c.f. Brown, 1992).

To examine the determinants of the size of bidder's willingness to pay over the land floor price, this study used the econometric model specified in equation 5:

$$PREMIUM_i = \alpha_i + \sum_{j=1}^{J} \beta_i S_{ij} + \varepsilon_i \qquad (5)$$

Here the dependent variable, land auction premium (PREMIUM), is defined in this study (following the literature, c.f. Weidong and Xiaolong, 2012; Abdul and Alirat, 2009; Ong et al., 2005) as the percentage difference between the winning price (per M^2) offered by the bidder for plot i and its floor price (per M^2) set by the city administration, divided by the floor price (per M^2) of the plot (as in equation 6):

$$PREMIUM_i = \frac{WPRICE_i - FPRICE_i}{FPRICE_i} \times 100\% \qquad (6)$$

This variable, $PREMIUM$, shows bidders' (developers) willingness to pay for the auctioned plot relative to the floor price. α and β are parameters of the model, S_{ij} is a set of j auction plot characteristic or explanatory variables (as specified in Table 1), and ε is prediction errors.

We also specified equation 7 as an alternative to equation 5. In equation 7 (following Alebel and Genanew, 2007b and Yuming and Stephen, 2001), the ordinary least squares (OLS) specification is used; where the dependent variable, land mark-up price, is expressed as the difference between the winning price (per M^2) for plot i and its floor price (per M^2). This variable, unlike to equation 5, is an absolute difference between the winning price and the floor price of the plot and is referred in this study as the markup price (MUP). It is considered in this study as an alternative definition for the bidder's willingness to pay for the auction plot. The parameters S_{ij} and ε_i, the set of plot characteristic ( ) and , are as defined in equation 5 but specific to the markup price.

$$MUP_i = \alpha_i^* + \sum_{j=1}^{J} \beta_{ij}^* S_{ij} + \varepsilon_i^* \qquad (7)$$

Table 1 presents the definition and summary statistics of variables used in the regressions. A detail investigation of the performance of the land auction market is presented in the next section. DRAFT

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4. EMPIRICAL ANALYSIS AND RESULTS

4.1. Performance of the Land Lease System

In section two, the implementation mechanism of the urban land lease regulation is described. In this section, we empirically investigate its actual performance both from supply and demand side. From the supply side, the study analyzes the trends in the supply of land auctions for different land use types, plot grade types and location of the city. This helps to understand whether or not there is a systematic trend in the supply of land, and, if so, what are the key considerations taken by the city's administration. This is be followed by the critical investigation of the demand side where we analyze land price development, the extent of the gap between the winning price and floor price as well as whether there is a systematic relationship between the two parameters. Lastly, an analysis of the determinants of the observed gap will be presented.

4.1.1. Supply Side of the Land Market: Land Auction Trends in Addis Ababa

More than 3000 plots were tendered by the city administration during December 2013/14 - October 2016/17. Of these, about 2621 plots (about 1,070,528 M^2) were transferred to bidders (developers) through 18 rounds of auctions. The largest number of plots (242 plots) was supplied in round 7 followed

by 238 and 230 plots in round 13 and 20, respectively. Only a few plots (less than 100 plots) were auctioned in round 12, 16 and 18[20]. Looking into the distribution of the transferred plots by their use type, about 50 percent, 41 percent, 8 percent, and 1 percent of the transferred plots were allocated for mixed, residential, business, and social or apartment uses through auctions, respectively. While the overall average plot size auctioned was about 408 M^2 per plot, there has been a noticeable variation across the various plot use types. The average size per plot auctioned was the largest for social use (1147 M^2) followed by plots used for business purposes (746 M^2), mixed use (477 M^2), and residential use (246 M^2). Though there is generally a decline in the supply of land (in plot size and number), clearly there has been a fluctuation in the size of land being supplied for auction over the study period (Figure 1). Whether this is due to the lack of capacity of the city's administration to supply sufficient-serviced land or due to a decline in land stock is an essential issue. This is because such a land market scenario may induce informal development due to high-unmet demands. It is worth noting that not all land supplied by the city are leased, which is a more worrying performance of the land auction market in particular in round 7 and

12. Only about 37 percent and 39 percent were sold in round 7 and 13, respectively.

INSERT FIGURE 1 HERE

In a related topic, a study by Alebel and Genanew (2007b) assessed the performance of the land auction market in the city for the period from 1994/95 to 2002/03. The study found that only 15 percent of the available plots were sold each year. Though the land auction market seems performing better in terms of the market clearing over the last decade compared to the market during the period 1994/95 to 2002/03, such performance entails a more detail investigations for two reasons. First, there is high demand for land particularly for domestic investment. Second, previous studies show that not just the number of plots supplied for auction matters but also that the type of land use crucially determines demand for land (Alebel and Genanew, 2007b).

A closer look into the land supplied for auction by land use type distribution revealed that in round 7 and 13, about 55 percent and 77 percent (respectively) of the land supplied for auction were for mixed use. From the trends portrayed in Figure 1, therefore, it is hardly possible to conclude insufficiency of supplying serviced land. The other possible reason for lack of market clearing transaction could be that the number of bidders for a particular plot of land matters most for such insufficiency. In this regard, a study by Alebel and Genanew (2007b) revealed that the average number of bidders per plot was 14 with an increasing trend over the period from 1999/00 to 2002/03, during which only 15 percent of the supplied land are transacted. A recent study by the World Bank also shows that number of bidders for a plot of land ranges from 10 to 12 (World Bank, 2016). Thus, other demand side factors may explain the

non-existence of the market clearing land auction, which is discussed next.

4.1.2. Demand Side of the Land Market: Land Price Development

In the economic sense, assessing the trends in the price development of land auction is the most important indicator of the level of efficiency of the land management system. In this regard, the mean winning price and base price (per M^2)of a plot of land is ETB 13,409[21] and ETB 218, respectively. Over the study period, the real auctioned price (per M^2) of land has shown an increasing trend. In real terms, land median price has increased by about 46 percent between 2013/14 (bid round 5) and 2016/17 (bid round 24). (Figure 2). On the other hand, the median real base price (per M^2) has shown a modest decline of about 11 percent over the study period.

INSERT FIGURE 2 HERE

Location wise, plots located in Addis Ketema sub-city, the center and most developed part of the city, are expensive compared to plots located elsewhere. The median price of a plot in Addis Ketema sub-city is ETB 150,500 (per M^2), which is way above the median price (ETB 63,600) of a plot in the second most expensive location of Lideta (Figure 3), which is also most developed and

oldest part of the city. Such high price is expected given that both sub-cities are developed and in the central part of the city compared to other sub-cities. It could also be due to a small number of plots available for auction in these two sub cities: only 6 and 13 plots were made available for auction in Lideta and Addis Ketema sub-cities during the study period, respectively. These two factors seem more plausible given the price of plot of land in the outskirt parts of the city and in part of the city where more number of plots are available for auction. Plots located in Akakai Kaliti sub-city are valued the lowest, with a median price ETB 9,012.25 per M^2. Similarly, the median price in Bole sub-city, from where about 43 percent of the plots made available for auction during the period from 2013/14 to 2016/17, is Birr 11,318 (per M^2) of land.

INSERT FIGURE 3 HERE

While location and the number of plots available for auction can have a crucial role in land price determination, plot use type can also affect its price. In nominal terms, the mean prices (per M^2) of plots for business, residential and mixed use are ETB 25,977; ETB 13,749; and ETB 12,693 respectively. However, there has been a substantial fluctuation in the land price, and it varies by land use type and plot grade. During the study period, the lowest price increase was observed for business use plots, followed by residential use, with the highest increment for mixed use plots. The real median price (per M^2) of plots for mixed use has increased by 73 percent in round 24 compared to round 5 (Figure 4). Similarly, the real median price of plots for business use increased by 34 percent while the increase for residential use plots was by about 69 percent. Such an increasing trend of the real median price could show the rising demand for plot of land in the city. The fluctuation in the prices of plots for commercial or business use is more frequent than the price of plots for mixed use with a steeper price increase for the later. A similar fluctuating pattern is observed in the real median price (per M^2) of plots of Grade III_4, Grade III_3, and Grade III_2 types. The real median price (per M^2) of plots of Grade III_2 types, in particular, has shown a drastic increase by about 159 percent in round 24 compared to round 5. Noticeably more plots are sold for mixed-use purposes and the number of Grade III_4 plots is the highest during

the study period. In the overall, land sale price offered by bidders is by far higher than the base price set by the city administration. While the average plot sale price (per M^2) is ETB 14052 (with median value of ETB 11838), the average base price for a plot is only ETB 221 (with median value of ETB 191). Noticeably, plots used for commercial or business purposes are sold at a higher price (on average) compared to plots used for mixed, residential or other purposes. Similarly, 'other' grade plots are sold at a higher price (on average) compared to Grade III_4, Grade III_3 or Grade III_2 plots. While such price development trends provide a general overview about the value of plot of land, it does not help to understand the revealed value for a plot of land offered by developers (or bidders). The next subsection fills this gap. It presents the result on the base, winning, premium and markup prices of plots by their use and grade types.

INSERT FIGURE 4 HERE

4.1.3. Land Premium and Markup Price

In this study, two alternative definitions are used to gauge the gap between the floor price (set by the government) and the winning price (offered by the bidder): premium price and markup price. While the former is defined as the percentage difference between the winning price (per M^2) and the floor price (per M^2, as defined in equation 6 in section 3), divided by the floor price; the latter is the absolute difference between the winning price (per M^2) and the floor price (per M^2) of the plot. In the economic sense, these indicators are the revealed value for a plot of land offered by developers. They measure the bidder's (developer's) willingness to pay for a specific auctioned plot [s]he is competing for relative to the floor price set by the government. Table 2 provides the summary statistics for land premium and markup prices by land use purpose and grade type.

INSERT TABLE 2 HERE

Irrespective of plot use type and plot grade type, plots were sold at an average premium of more than DRAFT 6000 percent over the base (floor) price. An important issue that can be observed in Table 2 is that the premium is higher for plots used for commercial purposes. Based on the median values, Grade III_4 plots received the highest premium. The range between the maximum and minimum premium is the highest for commercial plots and Grade III_4 plots. This should be viewed in light of the small number of plots of 'other' grade types. Moreover, the median sale price is smaller than the mean price, and the variations in median prices across the different plot use and grade types are less compared to the differences in mean prices. This would indicate the positive skewness of sale prices in that high valued plots are biasing the mean sale price. This is also confirmed by the distribution of the premium. In terms of plot use purpose, about 50 percent of the plots received a premium higher than 5522 percent (1st quartile premium value) while the 3rd quartile premium value is 7695 percent above the base price. The result is similar in terms of plot grades, with 25 percent of the plots received a premium higher than 7754, 7965, 6929, 10228 percent above the base price set for Grade III_4, Grade Grade III_3, III_2 and 'Others' type plots respectively. During the study period, median premium plot price increased from 5000 to 7927 percent above the base price while land markup price (per M^2) increased from ETB 10,203 to ETB 19,182. Such price variation is observed across the different land use type and plot grade. Figure 5 illustrates the variation in median premium values by plot use over the study period. While Figure 6 presents the trends in markup price by land use types across bid rounds over the study period, Figure 7 presents the trend in the overall median premium and markup price over the bid rounds.

INSERT FIGURE 5, 6 AND 7 HERE

In terms of markup price, the overall mean markup price of plot (per M^2) offered is ETB 13,831, with standard deviation of ETB 16,432 and a significant difference between the minimum (ETB 330) and maximum (ETB 353,965) offers. These figures vary by type of land use and plot grade (Table 2). Mixeduse plots have a median markup price of ETB 11,418 while residential and commercial use plots have median markup price of ETB 11,948 and ETB 10,995 respectively, with a high variation (standard deviation of ETB 56123) in the markup price of commercial use plots

compared to that of mixed and residential use plots. Such variation seems to suggest that there is high competition for mixed and residential use plots compared to plots for business use. The markup price offers also differ among the various plot grades. On average, Grade III_2 plots are highly valued, with a median markup price (per M^2) of ETB 15,932 and high standard deviation value of ETB 10812. Such a high variation in the markup price of Grade III_2 plots suggests the presence of high competition for Grade III_3 and Grade III_4 plots with relatively lower standard deviation of ETB 6806 and ETB 5589 respectively (Table 2).

In order to understand whether or not there is variation in land valuation across the different locations of the city, this study also examined the premium and markup price offers in each sub-city. A detailed investigation of the premium price by sub-city reveals that the highest median premium is offered for plots in Nifas Silk sub city, followed by plots in Bole sub city with a median premium of 8160 and 16598 percent respectively. Similarly, the highest markup price (per M^2) is offered for plots in Nifas Silk subcity, but in this case, followed by plots in Kolfe sub-city with markup price (per M^2) of ETB 16,598 and ETB 16,362 respectively. The lowest premium and markup price is observed in Akaki–Kaliti sub-city where a plot of land received a premium of 4278 percent (with a standard deviation of 1691 percent) above the base price and valued at a median markup price of ETB 8,805, with a standard deviation of ETB 3,480. In Nifas Silk, the premium ranges from 1104 to 20636 percent while the markup price ranges from ETB 3301 to ETB 61,701 whereas in Bole ranges from 173 to 18376 percent above the base price and the markup price in Kolfe ranges from ETB 3301 to ETB 48,626 (per M^2) . Notably, the ranges in the premium and markup price offers for plots in Addis Ketema, Kirkose and Arada sub-cities are exceptional.

Overall, the results suggest a number of key facts. The plot sale price is way higher than the base price set by the government. The difference between the base and sale prices (expressed in both premium and makeup prices) differ across the plot-use type, plot-grade types and plot locations. Such a jump in sale prices over the base prices is rational given the fast economic development in the city over the study period and the accompanying land demand for sustained infrastructure need. The result also suggests that the base price set by the city's administration seems not to proxy the sale price of land in the city. Though not steady, the land premium and markup price

has shown an increasing trend for each land use type over the study period. In sum, the results in this section revealed that the land premium and markup price for a plot of land not only vary by plot-use types and plot-grade types but also by location and over the auction period within similar type of plot use type and plot grade. Besides, the results show that there is a marked difference between the minimum and maximum premium and markup price offers. Thus, it is worth to conduct a detail investigation on such characteristics of price variations and their determinants, which is a point discussed in the next section.

4.2. Regression Results

Efficiency in land management is one of the key policy questions that requires evidence based information to decision makers. Specifically, examining whether the land lease system creates inefficiency or not is an empirical issue. The competitiveness of bidding in land auctions and, hence, the price bidders offer for a particular plot is specific to the individual bidder and is affected by observed and unobserved characteristics of the plot. Beginning our analysis by examining the difference in sale price relative to the floor price (using two alternative ways, stated in th e methodology section as equation 1 and equation 2, and equations 3.1 through 4.6), this section examines the determinants of the size of the premium (and markup) prices that land auction bidders are willing to pay over the land floor price. For the latter, this study used two regression estimations (stated in the methodology section as equation 5 and equation 7) to examine the determinants. Such multivariate analysis provides better information and greater insights into the factors that affect bidders' willingness to offer for auction plot. The empirical results from these models are presented in the following subsections. These presentations help to examine whether or not there is a systematic relationship between land developers' willingness to pay and the characteristics of the plot auctioned. The interpretation of the results from such quantitative analysis is enriched by the qualitative information gathered from key informants from policy making and private domestic investments. Firstly, the relationship between the floor price and winning price will be examined. This will be followed by a

presentation of the results of the empirical analysis of the determinants of the size of the premium and markup prices.

4.2.1. Relationship between Floor Price and Winning Price

As explained in Section 3 of this paper, plot grade is a key parameter used by the city's administration to determine the floor price of a plot. On the other hand, land use type is an important variable for the bidder (investor) who leases the land with the intent to use it for commercial, residential or mixed purposes; each may provide the bidder with different expected return of investment within the lease-agreement period. Consequently, separate regressions are specified for the major plot use (or investment) types: commercial, residential, and mixed purposes; as well as for the major plot grade types: Grade III_4, Grade III_3 and

Grade III_2.

Table 3 presents the econometric results for equation 1 and equation 2, and equation 3.1 through 4.6 (as presented in section 3). The results from these estimations are fairly similar. Except the results for Grade III_2 and Grade III_4 plots, the coefficients are significantly different from unity at 1 percent level. These

results suggest the presence of divergence between the floor and sale prices. This by enlarge confirms the finding reported in the description section of this paper in that the government-set prices have not acted as a good proxy for the land sale price in the city over the study period. The literature attributes such divergence between the guide and sale prices to differences in the timing of the valuation and sale of the plot (c.f. Brown, 1985) or to a fast increase of price in land market and a speculative nature of the market (c.f. Stevenson and Young, 2004). In the context of this study, the divergence may not necessarily be due to time differences, but rather due to the fast pace of land price and speculations in the land market in the city. Moreover, it can also be due to the fact that the government may have deliberately underpriced land in order to encourage developers to lease land for investment purposes. Alternatively, the divergence between the guide and sale prices can be due to inefficiency in continuously updating the

land floor price to reflect up-to-date land market scenario. Indeed, between bid round 5 and bid round 24, mean plot sale real price (per M^2) increased by 151 percent while the mean floor real price increased by only 8.62 percent. Such a price variation is observed across the different land use types. An exception in the econometric results is that of for Grade III_2 and Grade III_4 plots where the coefficients are not significantly different from unity.

INSERT TABLE 3 HERE

4.2.2. Determinants of the Size of Auction Premium (and Markup Price)

The descriptive statistics of variables included in the regressions are shown in Table 1. While about 60 percent of bid winners are required to deposit 20 percent of the bid amount as a down payment, 40 percent are required to deposit only 10 percent of the bid amount. Whereas the majority of bid winners (about 59 percent) are required to complete the total amount of the lease payment in 30 years, 41 percent are required to complete the total amount in 40 years with a grace period of 4 years. While the lease period for the majority (about 60 percent) of the auctioned plots is 90 or 99 years, the lease period for 40 percent of the auctioned plots is 60 or 70 years. The mean minimum capital amount bidders are required to have as their investment capacity is about ETB 466,002, with a minimum of amount of ETB 12,377 and maximum of ETB 1,820,000.

The empirical analyses of the determinants of auction premium and markup price uses two alternative estimations: equation 5 and equation 7. These two estimations differ only in the way their dependent variables are defined. While the estimation result for equation 5 (Table 4.1) has auction premium as a dependent variable, the dependent variable for equation 7 (Table 4.2) is plot markup price. Both results present the determinants of the divergence between floor price and sale prices of plots auctioned in the city, each estimated in three specifications. Such specifications are due to the collinearity observed between the variables for lease period and payment period. Additional specification is also used to assess the effect of plot grade as defined in two alternative variables[22]. Moreover, skewness is checked for all the continuous variables.

Accordingly, the logarithm transformations of auction premium price, markup price, benchmark price, winning price, plot size, and capital are used in the empirical analysis. Table 1 formally defines the variables used in the analysis.

A comparison of the results from the estimations of the three specifications in Table 4.1 (and Table 4.2) shows that the model that best fits the data used in this study is either specification 2 or 3. This is evidenced from the comparison of the goodness-of-fit measures where these specifications provide a better fit compared to their alternatives, as they generate the lowest AIC and BIC. Moreover, the choice of

 these specifications is intuitive given that their estimated coefficients provide more economic meaning in values and signs compared to the alternative specification. It is worth noting that the results in Table 4.1 and Table 4.2 are similar hence only the estimation results in specification 2 (and 3) of Table 4.1 are discussed below.

The estimated coefficient of determination indicates that about 51 percent of the variations in the bidder's premium price is explained by the model, and the joint F-statistic is significant at the 1 per cent level. This yields evidence regarding the strength of the estimation for the overall data. The constant term is positive and statistically significant at least at 5 percent, suggesting that plots in the city has high value regardless of its characteristic features, assuming all factors being constant. The results show that auction premium price is significantly explained by a number of factors including floor price, plot size, plot use type (residential versus mixed use), plot-grade types, plots location, and time of the auction (bid round). On the other hand, factors that are believed to be theoretically important in the bidder's land valuation decision are found to be insignificant. These include bidder's loan capacity (capital), amount of down payment to be paid, lease period of the plot, payment period and the number of floors allowed to be built on plot.

Though the government-set floor prices have not acted as a good proxy for the land sale price in the city

(as discussed earlier in this paper), it is found to have significant (at the 1 percent level) and positive effect on auction premium, indicating that a higher floor price increases bidders premium offer. This result reveals the important of floor price in guiding the sale price of a plot, suggesting that the determination of the floor price should be given due consideration as it

affects the auction premium. The estimated coefficient for plot size is negative and highly significant (at least at the 1 percent level) in affecting auction premium. Such negative effect of plot size may be due to that larger-sized plots entail land buyers to own higher capital and, hence, lower number of competitive bidders which results to a lower premium than the premium price offered to small-sized plots with a higher number of competitive bidders[23].

In terms of plot use type, the coefficient for mixed-use type is found to have a negative and statistically significant (at the 1 percent level) on auction premium. Though the coefficients for the business-use type is negative, it is statistically insignificant. Given that the reference category for plot use type dummy variables is residential, the result shows that plots for residential use commends a higher premium than plot for mixed or commercial uses. This result may be attributed to the demanding nature of plots for residential purposes and the accompanying housing price hikes in the city. If one believes that higher auction premiums in the city are due to the result of competition among land developers, then theses finding suggests that developers are more interested in residential developments. Indeed, the residential land market compared to the mixed or commercial land markets is highly demanding and developed in

Addis Ababa, suggesting the theoretical expectation that higher per plot turnouts for residential use plots are associated with an increases in auction price and greater auction premiums in these plots compared to mixed or commercial use plots. This finding implies the need to give due consideration in discriminating price across the different plot use types.

The coefficient for plot grade is found to be negative and statistically significant even at the 1 percent level. This result is in line with prior expectations given the plot grade in specification 2 or 3[24] (Table 4.1) is defined as a categorical variable with category 1 being for plots with better development condition and category 6 being for plots with the least developed conditions. The result demonstrates that bidders tend to offer higher premium for plots with better facilities. This is in line with prior studies (c.f. Qu and Liu, 2012) in that the higher the plot grade, the easier and quicker for land developers to develop the land into real estate, business or mixed use development projects. Given the hot land market in the city, an important lesson from this result is that the competition for high-grade plots can be strengthened through a unique auction

mechanism in allocating high-grade plots that are subject to a fierce competition. Interestingly, the coefficients for plots located in Yeka, Nifas Silk, and Bole sub cities are positive and statistically significant (at least at the 5, 5 and 10 percent levels respectively). Bidder's tend to offer higher auction premium to plots in these areas than other locations. These results could be due to the fact that most of the expansion areas of the city's physical area have been in these sub cities; and thus, plots of land are made available from these expansion parts of the sub cities. Following the city development in these areas, developers might have perceived greater opportunities in these areas than plots located in the inner city or elsewhere. If indeed this perception exists, it could have created intense competition among bidders during auctions leading to higher auction premium in these areas. The fact that location has a strong influence on bidders' premium is consistent with the literature (c.f. Deboer et al., 1992) where location advantages can be translated into high bidding prices and hence greater premiums. The result also shows that the coefficient for bid round is positive and significant at least at the 1 percent level, suggesting an increasing trend of land auction premium over time. The descriptive result (see section 4.1) also shows a similar result.

To control for the transaction year effect, we define year dummies for year 2013/14 to year 2016/2017, using year dummy 2016/17 as the reference year dummy. The result shows that only the dummy for year 2013/14 is statistically significant (at the 5 percent level) and negative suggesting that the auction premium in 2013/14 is significantly less than the auction premium in 2016/17. That is a significant transaction year effect is observed in the city in a span of three-year period.

5. SUMMARY AND CONCLUSION

Rapid urbanization rate can be an opportunity or a challenge, depending on how well a country manages

 urbanization. Ethiopia has recently witnessed a fast urbanization rate. Given that land in Ethiopia is constitutionally state owned, the urban land lease policy of the country is considered the most influential policy that determines

whether the country can capitalize the opportunities or face the challenges. It lays the foundation for acquiring 'land use right' through auction or negotiation, the only mechanism to acquire land for developers. There are debates among policy makers, scholars and donors that the lease policy not only restricts the right to transfer use right but also that it is not linked with the urban development strategy of the country. Thus, the limitations of the land lease policy still require reexamination of constraints and opportunities with the aim of devising appropriate measures and strategies for action. To this end, the paper critically reviews and empirically investigates the land lease policy and its institutional arrangement. From supply side, the paper critically reviews the land lease policy, its institutional arrangement as well as governance system. From the demand side, the paper quantitatively analyzed the fundamental factors that drive developers' land premium and markup price using the land auction data obtained from the city administration for the period 2013/14 - 2016/17. The study shows that though there is generally a decline in the supply of land (both in plot size and number), there has been a fluctuation in the size of land being supplied for auction over the study period. The more worrying finding of the study is that not all land supplied by the city are leased. In particular, only about 37 percent and 39 percent of the plots supplied to market were sold in round 7 and 13, respectively, though about 55 percent and 77 percent of the land supplied for auction were for mixed use. This implies that the city administration is injecting land for auction without any predetermined plan. Such practice clearly shows inefficiency in the land market. Over the study period, the real auctioned price (per M^2) of land has shown an increasing trend. In real terms, land median price has increased by about 46 percent between 2013/14 and 2016/17. But the median real base price (per M^2) has shown a decline of about 11 percent over the study period. Such increasing trend of real median price could show the rising demand for plot of land in the city. On the other hand, the study revealed that there has been substantial fluctuation in the price of plot of land, and it varies by land use type and plot grade. Over the study period, the lowest price increase was observed for business use plots, followed by residential use, with the highest increment for mixed use plots. Such increasing trend of real median price could show the rising demand for plot of land in the city.

In depth analyses of the price development of the land market revealed that median premium plot price increased from 5000 to 7927 percent above the base price while land markup price (per M^2) increased from ETB 10,203 to ETB 19,182. Such price variation is observed across the different land use type and plot grade. The results suggest a number of key facts. The plot sale price is way higher than the base price set by the government, the difference between the base and sale prices expressed in both premium and makeup prices differ across the plot use, plot grade types and plot location. Such a jump in sale prices

 over the base prices is rational given the fast economic development in the city over the study period and the accompanying land demand for sustained infrastructure need. The result also suggests that the base price set by the city administration seems not to proxy the sale price of land in the city. Though not steady, the land premium and markup price has shown an increasing trend for each land use type over the study period. Overall, there is large divergence between the winning and prices, implying huge inefficiency in the urban land market. This inefficiency is due to inappropriate timing of land valuation and sale, speculation and fast increase in price of land.

The descriptive results are also confirmed by the econometric result, which shows a mix of factors explain the price development in urban land market. Auction premium price is significantly explained by factors including floor price, plot size, plot use type, plot grade, plots location, and time of the auction. Our empirical result reveals that plot grade and access to basic services are important but are not the only factors in land price determination. This study found a very high divergence (expressed in both premium and makeup prices) between the auction guide and sale prices of land in Addis Ababa city, and plot sale price is way higher than the base price set by the city government. Besides, this variation is found to be significantly explained by a number of factors including floor price, plot size, plot use type (residential versus mixed use), plot grade, plots location, and time of the auction (bid round). Moreover, the auction premium in 2013/14 is found significantly less than the auction premium in 2016/17, suggesting a transaction year effect in a span of three-year period. Based on the leasehold regulation, a bench mark price is supposed to be updated at least every two years to reflect current condition. The result shows

that there is significant difference in land premium and markup price from round to round. Given that more than one rounds of bid are tendered in one year, there is little justification to update the markup price at least once in two years. On the other hand, though the government-set bench mark prices have not acted as a good proxy for the land sale price in the city, it is found to have significant and positive effect on auction premium and markup price. This suggests that the determination of the bench mark price should be given due consideration as it affects the land auction premium and markup price. These two results suggest that the municipality is not earning revenue from land whose value is determined based on market.

In terms of plot grade, the result demonstrates that bidders tend to offer higher premium for plots with better facilities. Given the hot land market in the city, an important lesson from this result is that the competition for high-grade plots can be strengthened through a unique auction mechanism in allocating high-grade plots that are subject to a fierce competition. The results on plot use type imply that even if domestic investors are more willing to provide higher value for plot of land that can fit with land size for productive investment, they are investing less in productive sector (that generates less employment) such as real estate. This suggests that the lease policy need to create incentives for domestic investors who are

 willing to invest in productive sector such as manufacturing since this is the policy priority of the government. Location wise, bidders tend to offer higher auction premium to plots located in the expansion parts of the city where developers might have perceived greater opportunities in these areas than plots located in the inner city or elsewhere. A more interesting finding of the econometric analyses is that factors that are believed to be theoretically important in the bidder's land valuation decision are found to be insignificant. These include bidder's loan capacity (capital), amount of down payment to be paid, lease period of the plot, payment period and the number of floors allowed to be built on plot. This shows that land value in urban Ethiopia is driven by a mix of economic and non – economic factors.

Overall the findings of this study revealed that inefficiency is a typical feature of the land market in urban areas of Ethiopia. Based on the findings, we conclude that the land scarcity in urban

Ethiopia, especially in Addis Ababa, is triggered by inefficiencies in the land markets, particularly in the lease-hold system the country is implementing. Such feature arises due to the speculative nature of the land market, which makes the land price not to increase systematically though it is growing very rapidly. This inefficiency is due to inappropriate timing of land valuation and unplanned supply of land to the market. Besides, inefficiency in the land market is due to unnecessary delay in transferring of the lessee land to developers, which not only delays construction but also increases construction cost. This finally leads to rapid increase in house price and makes business developers uncompetitive. Weak institutional capacity due to unskilled and unmotivated manpower is the primary cause for the inefficiency observed in the land market.

These conclusions imply that it is essential that appropriate measures need to be taken to tackle such inefficiency and weak institutional capacity to capitalize the opportunities from the rapid urbanization rate and effectively address its challenges. In this respect, the paper suggests to give due emphasis to two fundamental issues in urban land management. *First,* maximizing revenue from land market should be a short term motive of the municipalities. Such motive should also be implemented by considering the long-term development impact of urban land particularly in managing urban land for decent life for the growing urban population, encouraging productive and employment oriented investments and improving productivity. This requires not only to develop urban plan but also that it helps to frame how to integrate the different aspects of urban development and consider the foreseen future opportunities and challenges of urbanization in planning. Second, in relation to the above, it should be known that institutional capacity is fundamental to prepare feasible Plan, effectively implement it, enforce regulations and for transparent urban land management system. Given the fundamental causes that drive the current poor urban land management and inefficient land market, substantial improvement can be made in this area if the city administration takes fundamental measures that improve its institutional capacity. This can be made with little additional costs if the city administration improves its human resource management at its regulatory

 and implementing organs. In this regard, it is essential to hire qualified manpower, and adopt merit – based assignment and performance –

based staff motivation mechanism using both monetary and non – monetary forms of incentives. Besides, it is crucial to design and provide clear roles and responsibilities with full accountability at different levels including at lowest administrative organ. It should also be clear that active participation of the local community is an essential part of urban land management. Such arrangements can have substantial benefits given the existing available potentials and fundamental causes for the current inefficient and ineffective urban land management. These two measures will have substantial contributions to administratively and technically tackle other issues that may arise and commonly known in the literature in managing urban land for capitalizing the opportunities from the rapid rate of urbanization. Finally, considering the capability of the rural citizens, who are linked to urban areas and are expected to be displaced as urbanization progresses, to access the opportunities and their entitlements for integration into cities throughout the urbanization process, is fundamental for the effective management of peri-urban land for urbanization. In this respect, as there is little empirical evidence, we recommend to undertake further research.

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Appendices

Figure 1: Trends in land size (in M²) available for auction and leased: Dec. 2013 to Oct. 2016

Figure 2: Trends in median auctioned land price: Dec. 2013 to Oct. 2016

*CPI, obtained from Central Statistical Agency, is used to calculate the real price.

Figure 3: Land median price (per m²) by Sub city: Dec. 2013 to Oct. 2016

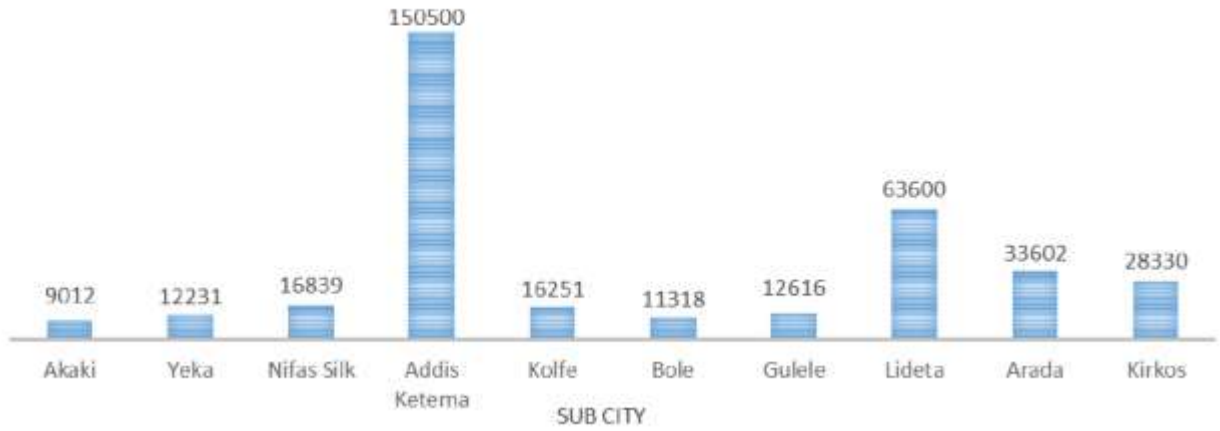

Figure 4: Trends in land median real price (per M²) by plot use type: Dec. 2013 - Oct. 2016

Figure 5: Trends in median premium price by plot use type, by round

Figure 6: Trends in Median Markup price (Per M²) by plot use type, by round

Figure 7: Trends in Median Premium and Markup price, by Round

Table 1: Definition of variables and Summary Statistics

Variable	Definition	Obs.	Mean	Std. Dev.	Median	Min	Max
Premium price	The percentage difference between the winning price (offered by the bidder) and the floor (bench mark) price, divided by the floor price. Both prices are expressed per square meter.	2034	6107	3127	5522.12	172.77	23060
Logarithm of premiu m price		2034	8.59	0.54	8.62	5.15	10.05
Markup price	Winning price for a plot minus its floor price. Unlike to the Premium price, this variable is an absolute difference and used in this study as an alternative definition for bidder's willingness to pay for a plot.	2034	13831	16432	11607	330	353965
Logarithm of markup price		2034	9.34	0.59	9.36	5.80	12.78
Floor/bench mark price	Base price of the plot in ETB per M^2. This price is set by the city administration (government) publicly announced for auction participants. It is often a measure of the value of the site.	2621	218	112	191	132	1535
Logarithm of floor/be nch mark price		2621	5.34	0.23	5.25	4.88	7.34
Winning price	Winning price of the plot in ETB per M^2.	2451	13409	15260	11200	521	355500
Logarithm of Winning price		2451	9.32	0.57	9.32	6.26	12.78
Plot size	The size of the plot in M^2.	2621	408	363	305	104	7803
Logarithm of plot size		2621	5.80	0.59	5.72	4.64	8.96
Capital	Amount of capital and/or loan capacity (in ETB) of the bidder as registered by the city government at the time of auction.	2617	466002	846287	2.8e+05	12377	1.82 e+07
Logarithm of capital		2617	12.32	1.22	12.54	9.42	16.72
Down Payment	Down payment as a percentage of winning price that the winner is expected to						

	immediately pay. The remaining balance is to be paid over the lease payment period. *Dummy variable: 1 if 20 %; 0 if 10 %.*	2621	0.59	0.49	1.00	0	1
Lease period*	Period of urban land lease in years. *Dummy variable: 1 if 90 or 99 years; 0 if 60 or 70 years.*	2621	0.41	0.49	0	0	1
Payment period	Dummy variable for the number of years the wining amount will be paid: 1 if 30 years; 0 if 40 years.	2620	0.41	0.49	0	0	1

Table 1 continued…

Variable	**Definition**		**Obs.**	**Mean**	**Std. Dev.**	**Median**	**Min**	**Max**
Land use type*	*Two Dummy variables:* Dummy for Mixed use: 1 if plot is for mixed use and 0 if otherwise; Dummy for Business use plot: 1 if plot is for commercial or business purpose and 0 if otherwise; and Dummy for Residential use: 1 if plot is for Residential use and 0 if otherwise.	Dummy for Mixed use plot: 1 if plot is for mixed use and 0 if otherwise	2600	0.51	0.50	1	0	1
		Dummy for Business use plot: 1 if plot is for commercial/business purpose and 0 if otherwise	2600	0.08	0.27	0	0	1
		Dummy for Residential use plot: 1 if plot is for Residential use and 0 if otherwise.	2600	0.41	0.49	0	0	1
Plot Grade*	*First estimation*: *Land grade in 6 cate gories* Six categories as per the classificatio n of the A.A city administration, category 1 being with the batter development con dition, and 6 with the lowest.		2615	1.48	0.96	1	1	6

Two variables are used in two separate model estimations:	*Second estimation*: Four dummy variables are created by re-categorizing the six categories of the city administration. We included three dummy variables in the estimation	Dummy for Grade 4: 1 if plot Grade is III_4, and 0 if otherwise	3038	0.78	0.41	1	0	1
		Dummy for Grade 3: 1 if plot Grade is Grade III_3, and 0 if otherwise	3038	0.14	0.34	0	0	1
		Dummy for Grade2: 1 if plot Grade is Grade III_2, and 0 if otherwise	3038	0.07	0.26	0	0	1
Plot Location	Measure the location of the plot in the city. The city is administratively divided in to ten sub cities. We created dummy for each of the sub cities. Kirkos (sub city 10) is the comparative sub city for location effect on land value.	Dummy for Akaki Kaliti sub city: 1 if plot is in Akaki; 0 if otherwise.	3038	0.27	0.44	0	0	1
		Dummy for Yeka sub city: 1 if plot is in Yeka; 0 if otherwise.	3038	0.13	0.34	0	0	1
		Dummy for Nifas Silk lafto: 1 if plot is in Nifas silk; 0 if otherwise.	3038	0.05	0.22	0	0	1
		Dummy for Addis Ketema: 1 if plot is in Addis Ketema; 0 if otherwise.	3038	0.01	0.07	0	0	1
		Dummy for Kolfe Keraniyo: 1 if plot is in Kolfe Keraniyo; 0 if otherwise.	3038	0.10	0.30	0	0	1

Table 1 continued…

Variable	Definition	Obs.	Mean	Std. Dev.	Median	Min	Max

Plot Location* ***(Continued)***	Measure the location of the plot in the city. The city is administratively divided in to ten sub cities. We created dummy for each of the sub cities. *Kirkos* (sub city 10) is the comparative sub city for location effect on land value.	Dummy for Bole sub city: 1 if plot is in Bole; 0 if otherwise.	3038	0.43	0.50	0	0	1
		Dummy for Gulele sub city: 1 if plot is in Gulele; 0 if otherwise.	3038	0.00	0.07	0	0	1
		Dummy for Lideta sub city: 1 if plot is in Lideta; 0 if otherwise.	3038	0.00	0.06	0	0	1
		Dummy for Arada sub city: 1 if plot is in Arada; 0 if otherwise.	3038	0.00	0.03	0	0	1
		Dummy for Kirkos sub city: 1 if plot is in Kirkos; 0 if otherwise.	3038	0.00	0.04	0	0	1
Bid round	Bid round number 5 to 24		2452	15	5.74	20	5	24
Number of floors on plot	This variable is a categorical variable (1 to 4), 4 being for plots with higher number of floors allowed to build on plot.		2621	1.50	0.83	1	1	4
Year Dummy*	Year Dummy 2013/14: 1 if plot is auctioned in year 2013/14 E.C.; 0 if otherwise.		2621	0.25	0.43	0	0	1
	Year Dummy 2014/15: 1 if plot is auctioned in 2014/15; 0 if otherwise		2621	0.35	0.48	0	0	1
	Year Dummy 2015/16: 1 if plot is auctioned in 2015/16; 0 if otherwise		2621	0.36	0.48	0	0	1
	Year Dummy 2016/17: 1 if plot is auctioned in 2016/17; 0 if otherwise		2621	0.05	0.21	0	0	1

TABLE 2: Summary statistics for Premium and Markup prices by land use purpose and grade type

		Entire Sample	Plot use (or investment) types				Plot grade types			
			Mixed	*Commercial / Business*	*Residential*	Other	Grade III_4	Grade III_3	Grade III_2	Others
Number of observations		2034	1017	136	873	8	1392	401	214	27
Mean floor/base/ price		221	212	289	219	386	195.18	222.91	300.05	899.22
Mean Sale/winning/ price		14052	12693	25976.60	13749	17253	11830.47	14106.57	18444.88	92967.74
Median floor/base/ price		191	191	191	217	191	191.00	217.00	299.00	935.00
Median Sale/winning/ price		11838	11619	11185.50	12155	6635	11105.00	12345.67	6231.00	51050.00
Premium (Average absolute % difference)	Mean	6107%	5955%	6551%	6227%	4785%	6018.03%	6317.50%	6051.13%	7990.88%
	Median	5522%	5660%	5717%	5453%	3269%	5659.16%	5522.12%	5292.14%	5359.89%
	Minimum	173%	173%	590%	1235%	1104%	172.77%	1994.93%	1104.01%	2491.55%
	Maximum	23060%	20636%	23060%	22151%	17544%	22151.31%	18870.97%	20635.79%	23059.61%
	0 – 5 %	102 (5%)	85 (8%)	9 (7%)	6 (1%)	1 (13%)	88 (6.32%)	2 (0.50%)	11 (5.14%)	0 (0%)
	5 – 10 %	102 (5%)	70 (7%)	10 (7%)	19 (2%)	3 (38%)	64 (4.60%	23 (5.74%)	12 (5.61%)	3 (11.11%)
	10 – 25 %	303 (15)	134 (13%)	18 (13%)	150 (17%)	1 (13%)	175 (12.57%)	88 (21.95%)	33 (15.42%)	7 (25.93%)

	25 – 50 %	512 (26%)	208 (21%)	27 (20%)	275 (32%)	2 (25%)	357 (25.65%)	90 (22.44%)	61(28.50%)	4 (14.81%)
	50 – 75 %	506 (25%)	262 (26%)	33 (24 %)	211 (24%)	0 (0%)	351 (25.22%)	90 (22.44%)	61(28.50%)	4 (14.81%)
	75% +	510 (25%)	258 (25%)	39 (29%)	212 (24%)	1 (13%)	357 (25.65%)	108 (26.93%)	36 (16.82%)	9 (33.33%)
Markup	Mean	13831	12481	25688	13530	16867	11635	13884	18145	920689
	Median	11607	11428	10995	11948	6444	10910	2128.67	15932	50115
	Standard deviation	16432	8071	56123	6164	21636	5589	6806	10811	104901
	Minimum markup	330	330	1126	2359	3301	330	4329	3301	8845
	Maximum markup	353965	100691	353965	48626	64465	42309	40950	61701	353965

TABLE 3: Regression result of the relationship between Floor (base) price (FPRICE) and Wining (sale) price (WPRICE)

			Log of WPRICE regressed on log of FPRICE		Log of FPRICE regressed on log of WPRICE	
			Constant	Sale price	Constant	Floor price
Full sample		Coefficient	3.805	0.166	3.979	1.00
		Standard Error	0.077	0.008	0.267	0.050
		T-statistics	49.32***	20.15***	14.880***	20.150***
Plot use types	*Mixed*	Coefficient	4.582	0.080	5.547	.701061
		Standard Error	0.096	0.010	0.480	0.090
		T-statistics	47.680 ***	7.790***	11.56***	7.790***
	Business	Coefficient	1.077	0.460	1.792	1.412
		Standard Error	0.277	0.029	0.489	0.099
		T-statistics	3.880***	15.770***	3.670***	15.770***
	Residential	Coefficient	4.290	0.115	5.131	0.801
		Standard Error	0.116	0.0122	0.458	0.085
		T-statistics	37.120***	9.400***	11.200***	9.400***
Plot grade types	*III_4 Grade*	Coefficient	5.224	0.005	8.425	0.158
		Standard Error	0.043	0.005	0.817	0.155
		T-statistics	121.560***	DRAFT 1.020	10.310***	1.020
	III_3 Grade	Coefficient	5.016	0.040	6.750	0.500
		Standard Error	0.132	0.014	0.947	0.176
		T-statistics	37.890***	2.850***	7.130***	2.850***
	III_2 Grade	Coefficient	5.692	0.001	6.272	0598
		Standard Error	0.029	0.003	8.855	1.553
		T-statistics	193.340***	0.390	0.710	0.390

Table 4.1: Regression result: Determinants of Land Premium

Dependent variable: Logarithm of Premium Price (Equation 5*)									
Variables		Specification 1			Specification 2			Specification 3	
		Coef.	Std.		Coef.	Std.		Coef.	Std.
Logarithm of floor/bench mark price		-0.680***	0.200		0.816**	0.340		0.816**	0.340
Logarithm of plot size		-0.127***	0.034		-0.114***	0.034		-0.114***	0.034
Logarithm of capital		-0.007	0.019		-0.003	0.019		-0.003	0.019
Down Payment		-0.348	0.379		-0.349	0.380		-0.349	0.380
Lease period		-	-		-0.413	0.340		-	-
Payment period		-0.425	0.416		-	-		-0.413	0.416
Land use type	Dummy for Mixed	-0.540***	0.171		-0.534***	0.171		-0.534***	0.171
	Dummy for Business	-0.250	0.173		-0.236	0.172		-0.236	0.172
Plot grade[a]	Land grade in 6 categories	-	-		-0.182***	0.051		-0.182***	0.051
	Dummy for Grade III_4 plot	-0.591***	0.155		-	-		-	-
	Dummy for Grade III_3 plot	-0.608***	0.142		-	-		-	-
	Dummy for Grade III_2 plot	-0.527***	0.114		-	-		-	-
Plot Location[b]	Dummy for Akaki sub city	-1.521***	0.291		0.283	0.472		0.283	0.472
	Dummy for Yeka sub city	-0.867***	0.293		0.938**	0.470		0.938**	0.470

	Dummy for NifasSilk lafto	-0.688**	0.288	1.096**	0.472	1.096**	0.472
	Dummy for Addis Ketema	-0.239	0.196	-0.225	0.193	-0.225	0.193
	Dummy for Kolfe Keraniyo	-1.047***	0.284	0.750	0.471	0.750	0.471
	Dummy for Bole sub city	-0.971***	0.295	0.847*	0.471	0.847*	0.471
	Dummy for Gulele	-1.109***	0.304	0.685	0.485	0.685	0.485
	Dummy for Lideta sub city	-0.862***	0.245	-0.130	0.258	-0.130	0.258
	Dummy for Arada	-1.009***	0.321	-0.194	0.333	-0.194	0.333
Bid round		0.039***	0.006	0.039***	0.006	0.039***	0.006
Number of floors on plot		0.003	0.015	0.001	0.001	0.001	0.014
Year Dummy[c]	Year Dummy 2013/14	-0.265**	0.109	-0.266**	0.109	-0.266**	0.109
	Year Dummy 2014/15	-0.100	0.078	-0.120	0.077	-0.120	0.077
	Year Dummy 2015/16	0.078	0.055	0.066	0.054	0.066	0.054
Constant		14.847***	1.419	4.655**	2.236	4.655**	2.236
Number of observations		*2015*		*2009*		*2009*	
Adjusted R^2		*0.5081*		*0.5079*		*0.5079*	
F(24, 1990)		*87.67****		*F(22, 1986)= 95.22****		*F(22, 1986) = 95.22****	
Likelihood		*-885.315*		*-885.647*		*-885.647*	
AIC; BIC		*1820.63; 1960.84*		*1817.29; 1946.227*		*1817.29;1946.22*	

Refers to equation 5 in the section 3 of this paper. [a]Plot grade** is defined in two alternative ways (land grade in 6 categories as per the classification of the city administration, and in four dummy variables re-categorizing the six categories) and hence two separate estimations. In the second estimation dummy for other Grade type plot is as a comparative group. [b]**Kirkos** (sub city 10) is the comparative/reference sub city for location effect. [c]**The year** 2016/17 is used as a comparative year. This is used to control for transaction year effect.*

Table 4.2: Regression result: Determinants of Land Markup price

Dependent variable: Logarithm of Land Markup Price (Equation 7*)					
	Specification 1		**Specification 2**		**Specification 3**

Variables		Coef.	Std.		Coef.	Std.		Coef.	Std.
Logarithm of floor/bench mark price		0.320	0.200		1.816***	0.340		1.816***	0.340
Logarithm of plot size		-0.127***	0.034		-0.114***	0.034		-0.114***	0.034
Logarithm of capital		-0.007	0.019		-0.003	0.019		-0.003	0.019
Down Payment		-0.348	0.379		-0.349	0.380		-0.349	0.380
Lease period		-	-		-0.413	0.416		-	-
Payment period		-0.425	0.416		-	-		-0.413	0.416
Land use type	Dummy for Mixed	-0.540***	0.171		-0.534***	0.171		-0.534***	0.171
	Dummy for Business	-0.250	0.173		-0.236	0.172		-0.236	0.172
Plot grade[a]	Land grade in 6 categories	-	-		-0.182***	0.051		-0.182***	0.051
	Dummy for Grade III_4 plot	-0.591***	0.155		-	-		-	-
	Dummy for Grade III_3 plot	-0.608***	0.142		-	-		-	-
	Dummy for Grade III_2 plot	-0.527***	0.114		-	-		-	-
Plot Location[b]	Dummy for Akaki sub city	-1.521***	0.291		0.283	0.472		0.283**	0.472
	Dummy for Yeka sub city	-0.867***	0.293		0.938**	0.470		0.938**	0.470
	Dummy for NifasSilk lafto	-0.688**	0.288		1.096**	0.472		1.096	0.472
	Dummy for Addis Ketema	-0.239	0.196		-0.225	0.193		-0.225	0.193
	Dummy for Kolfe Keraniyo	-1.047***	0.284		0.750	0.471		0.750	0.471
	Dummy for Bole sub city	-0.971***	0.295		0.847*	0.471		0.847*	0.471
	Dummy for Gulele	-1.109***	0.304		0.685	0.485		0.685	0.485
	Dummy for Lideta sub city	-0.862***	0.245		-0.130	0.258		-0.130	0.258
	Dummy for Arada	-1.009***	0.321		-0.194	0.333		-0.194	0.333

Bid round		0.039***	0.006		0.039***	0.006		0.039***	0.006
Number of floors on plot		0.003	0.015		0.001	0.014		0.001	0.014
Year Dummy[c]	Year Dummy 2013/14	-0.265**	0.109		-0.266	0.109		-0.266**	0.109
	Year Dummy 2014/15	-0.100	0.078		-0.120	0.077		-0.120	0.077
	Year Dummy 2015/16	0.078	0.055		0.066	0.054		0.066	0.054
Constant		10.242***	1.486		0.050	2.236		0.050	2.236
Number of observations		*2015*			*2009*			*2009*	
Adjusted R^2		*0.5854*			*0.5856*			*0.5856*	
F(24, 1990)		*119.47****			*F (22, 1986) = 129.99****			*F (22, 1986) = 129.99****	
Likelihood		*-885.32*			*-885.65*			*-885.65*	
AIC; BIC		*1820.63; 1960.84*			*1817.29; 1946.22*			*1817.29; 1946.22*	

**Refers to equation 7 in the section 3 of this paper*

Note:

[1] The authors would like to acknowledge the Addis Ababa city administration for making the land transactions data available for this study. The Critical Assessment of Urban Land Leasehold System in Ethiopia by Alebel and Birhanu (2017) greatly helped to shape the review section of this study, and the authors are indebted to this work. [2] Though Ethiopia is among the least urbanized country in the world, the country is one of the most rapidly urbanizing countries in Sub Saharan Africa. About 19 percent of its people (more than 102 million in 2016, World Bank, http://www.worldbank.org) currently live in the country's urban areas, with annual growth rate (1984 – 2013) of 4.54 percent and expected to triple by 2040 (UN, 2012).

[3] Addis Ababa is the capital of the Ethiopia and seat of many international organizations such as AU and UNECA. [4] In Addis Ababa city, for example, this study confirms that real price of land per M^2 increased by 151 percent between 2013 and 2016.

[5] Sale of land or land rights has the advantage of producing revenue quickly and being easier to administer than betterment taxes, land re-adjustment schemes, or universal property taxation. For example, the study by the World Bank revealed that many cities in China have financed half or more of their very high urban infrastructure investment levels directly from land leasing, while borrowing against the value of land on their balance sheets to finance much of the remainder (George E. Peterson, 2006).

[6] Mayer (1998) compared the returns to auctions and those to negotiated sales using U.S. real estate transaction data. The performance of auction market for residential real estate in Christchurch, New Zealand has been studied by Dotzour, Moorhead, and Winkler (1998). Lust (1996) studied the auction market for houses in the Melbourne (Australia) housing market to test the impact of auction on house prices.

[7] While Abdul and Alirat (2009) provided an empirical evidence of the influence of first-price bid auction premiums in Nigeria, Amidu and Oyedele (2008) studied the price formation in residential property market in the same country. A study by Aluko (2007) focused on the accuracy of Auction sale valuations in distressed banking lending decisions in Nigeria.

[8]These proclamations can be cited as the Urban Lands Lease Holding Proclamation No. 80/1993, 271/2002; and
721/2011, respectively. They are applicable to all urban centers in Ethiopia with a minor difference for Addis
Ababa.

[9] These objectives are expected to be realized through the role of the proclamations in enhancing investment (economic growth), improvement in housing and infrastructure (equity) through revenue collection (capital mobilization), regulated expansion and/or restrict the informal expansion of cities (social objective).

[10] Evidences revealed that the key challenges in urban Ethiopia include, among others, lack of affordable and decent houses, unemployment, infrastructure such as water supply and sanitation, and poor waste management.

[11] Given the skyrocketed land prices in the land lease auction market, Ethiopia uses land as a key instrument and incentive to attract investments by providing free or subsidized land access.

[12] Ethiopia is a federal state consisting of nine regional states and two city administrations. Each regional state and city has constitutional mandate to administer and prepare regulations for the implementation of the land lease policy within their jurisdiction.

[13] The form contains four sections in addition to its heading and bid round number. In the first section, bidders are expected to fill their personal information including their full name, residence and nationality. In the second section, basic information of the plot is described including area code, location of the plot, area size in square meter, type of plot use, minimum building requirement, and benchmark price per M^2 in Ethiopian Birr, lease payment completion period and lease period. The third section of the form is left for bidders to fill (in figure and words) their offer value including price per M^2, initial down payment in percent and total lease price of the plot. In the last section, bidders should indicate whether or not they have attached bid bond and any other documents such as official delegation. [14] This condition gives weights to the topography of the site (slope, soil type and texture/morphology, bearing capacity, hydrology, etc.), its existing/planned engineering and economic infrastructures (e.g. road, drainage, sewerage, electricity, transportation and communication, water, business area, etc.), its access to social and administrative infrastructures (e.g. health, education, police stations, fire-extinguishing, stations, sport and recreation, worship place, green areas, etc.), housing condition (e.g. function, typology and condition, etc. of the house), and urban plan of the city (e.g. land use and function, and building blocks).

[15] There could be various reason for the cancellation of a tender. Perhaps, it could be that the number of bidders per plot is less than three, in which case the tender should be cancelled or lack of information. According to the urban land leasehold policy, a bid should be cancelled if less than three bidders participated in the round of tender. Lack of information which could be due to affordability, residents' perception on the high competitiveness of the land auction market in city or speculation on the land price by the so called 'middle men'.

[16]The Land Bank and Transfer Office of the Addis Ababa city administration made available information on completed land lease transactions and new land lease listings to the public through its website on a regular basis. [17] Addis Ababa, the capital city of Ethiopia and sit of many international organization including AU and UNECA, is divided into ten sub-cities. Each sub-city is further divided into districts ('weredas,).

[18] In this paper, base price, guide price, bench mark price or reserve price are alternative names for floor price. [19] Based on the lease policy, the guide (or bench) price is updated at least every two years to reflect current condition.

[20] Location wise, the largest number of plots (988 plots) was auctioned in Bole sub city, followed by those supplied in Akaki Kaliti sub city (809 plots). Of the total number of plots supplied for auction during the study period, only less than 2 percent were auctioned in Addis Ketema, Gulele, Lideta, Arada and Kirkos sub cities combined. A similar trend is observed in the total size of land auctioned in these sub cities.

[21] USD $1 = EthiopianTH Birr 207.38 as of December 19, 2017.

[22] We used two variables to measure plot grade which are included in two separate model estimations. In the first estimation, we create land grade categorical variable that characterize the land grade into 6 categories as per the classification of the city administration. In the second estimation, we create four dummy variables by re-categorizing the six categories of the city administration into four grade. The bench mark land price map of A.A City labeled plots in the city in to five grades where Grade 1 plot is with batter development condition, and so on. Thus, access to basic services here is specified as: 1 if plots is Grade 1, 2 if Grade 2; 3 if Grade 3; 4 if Grade 4; and 5 if Grad 5. We further narrow down these groupings into four categories: 1=Grade4, 2=Grade4,3=Grade2, 4=Others. Only few observations (about 1.15%) are in category 4. Therefore, we introduced three dummies: DummyGrade4, DummyGrade3, DummyGrade2, and hence Other Grade types (only about 35 obviations, 1.15%) are reference category.

[23] Inclusion of the 'square of plot size' would have been enlightening in terms of knowing the U or Inverted-U shape

effect of plot size on auction premium. However, this variable is excluded in the regression as it is highly collinear 'square of plot size' an independent variable instead of 'plot DRAFT with 'plot size'. However, a separate regression using size' shows the former has negative and significant effect on auction premium.

A similar result is found in specification 3 (see table 4.1) where plot-grade variable is defined as a set of dummy variables.