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Effects of privatisation of low-cost public rental housing in Matero, Lusaka

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Abstract

Property rights are widely imagined to have considerable positive effects on urban poverty. However, evidence is scarce, particularly regarding non-economic aspects of property rights. Evidence is also lacking from the Southern African context. This paper examines effects of property rights in Zambia through a case-study of the privatisation of low-cost public rental housing for poor people in Matero neighbourhood of Lusaka city. Data from a household survey (n=623) is used. Ordinary Least Squares and logistic regressions are employed. Altogether, eleven hypotheses are tested. Results show that titling contributes to an increase in property values, household per capita income and wealth, in terms of household durables, and political awareness. There is no effect of titling on employment status of heads of households, employment status of female heads of household, access to credit, home-based investments, membership in voluntary associations, neighbourhood attachment and frequency of volunteerism. The study demonstrates that effects of titling extend beyond economic effects, a sphere which scholars need to explore further. Since titling had no effect by important economic measures, it is likely that poverty in Matero is driven so strongly by macroeconomic factors such as high unemployment in Zambia such that property rights make little difference to poverty.

1. Introduction

Titling has been advanced as an important solution to urban poverty (Durand-Lasserve and Selod, 2009: 110-111). Titling may be defined as the process of integrating informal tenure into a system recognized by public authorities through the delivery of real property rights authenticated and guaranteed by the state through freehold and leasehold title deeds (Durand-Lasserve and Selod, 2009: 105). From the 1970s, titling programmes have been promoted alongside homeownership schemes aimed at increasing tenure security and reducing poverty across the developing world (De Soto, 2000; Buckley and Kalarickal,

2006; Payne *et al.*, 2009: 444). Few empirical studies have been carried out in this field (Durand-Lasserve and Selod, 2009: 115). Empirical knowledge on the effects of titling in Southern Africa is even scarcer despite the existence of titling programmes. Furthermore, the few empirical studies that have been done across the developing world are overwhelmingly focused on economic effects such as improvements in property values (Lanjouw and Levy, 2002), labour supply and household income (Field, 2005; 2007; Field and Torero, 2006), access to credit (Field and Torero, 2006; Durand-Lasserve and Selod, 2009: 109; Galiani and Schargrodsky, 2010: 710), and home-based investments. Scholars have paid less attention to non-economic effects even though 'titling theory' predicts that property rights have both human and social capital effects (Galiani and Schargrodsky, 2004; 2010; Vogl, 2007; Pecha and Ruprah, 2010; Gandelman, 2010) which include children's education, health and political awareness, membership in voluntary associations, neighbourhood attachment, civic participation, and volunteerism. Social aspects of development are equally important and therefore deserve as much attention as economic aspects.

This paper examines the economic and non-economic effects of property rights relative to administrative recognition of occupancy in Lusaka city, Zambia. Administrative recognition of occupancy is a process of delivery of temporary rights mainly through licenses in which building is conditional on standards set by authorities (Durand-Lasserve and Selod, 2009: 10). The paper evaluates the effects of the sale of low-cost public rental housing to sitting tenants in Matero under Zambia's privatisation policy (pursued by the country since 1991) using residents of George Compound (a former informal settlement that was upgraded) who possess occupancy licenses as a comparison group.

Studies on urban housing tenure in Zambia have been concerned with the evaluation of the World Bank-funded squatter upgrading and site and service project which took place between 1974 to 1983 (see Rakodi and Schlyter, 1981; Hansen, 1982; Chisanga, 1986; Sanyal, 1987; Rakodi, 1988; Moser *et al*., 1997), and the privatisation of publicly-owned housing which began in 1996 (see Palmer, 2000; Schlyter, 2002; 2004; Basila, 2005; Butcher and Oldfield, 2009; Mususa, 2010). A comprehensive evaluation of the 1996 Zambia Housing Policy is offered by Makasa (2010) but it does not discuss effects of titling, nor does it comprehensively evaluate upgrading projects. The study most focused on the effects of property rights is a qualitative study offered by Basila (2005) on Mufulira, Copperbelt in which she found slight improvement in economic status. She concluded however that housing did not lead to meaningful economic empowerment and did not provide a sustainable solution to economic insecurity. Mususa (2010) offers an ethnographic account of post-privatisation experiences of housing in Luanshya, Copperbelt and shows that the houses and yards that people gained were used for a wide array of informal economic

activities which allowed families to just "get by". Nevertheless, studies of a quantitative nature are few and far between. This paper fills these gaps in the literature. Altogether, eleven hypotheses are tested.

2. Context

2.1 Matero

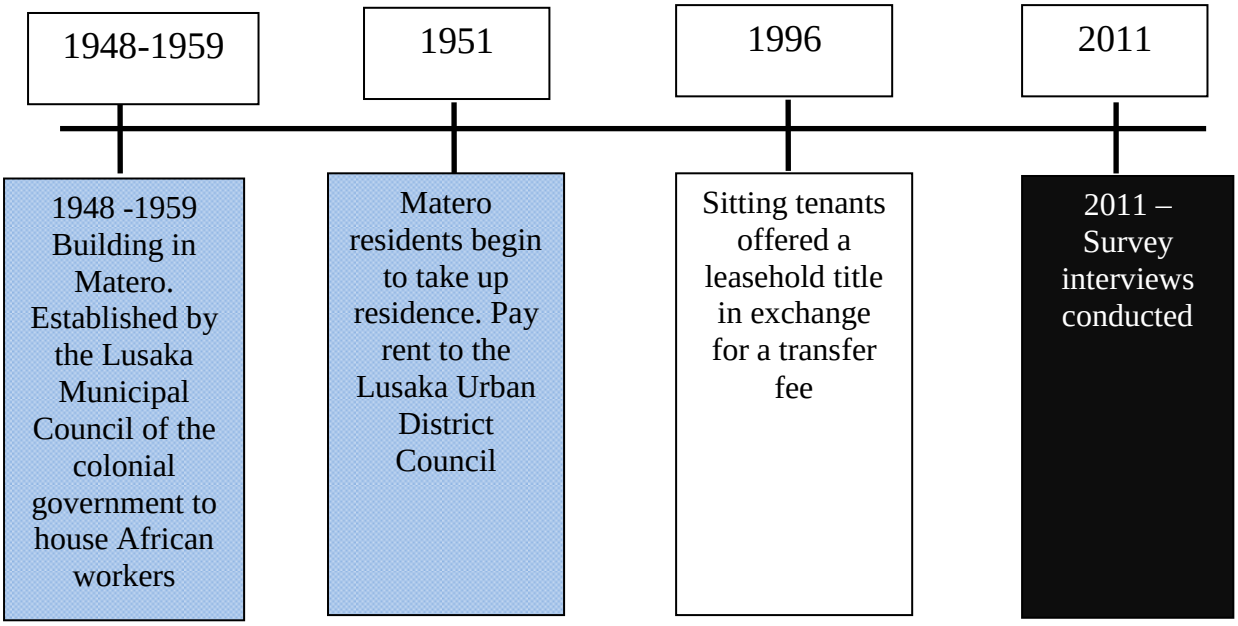

Figure 1: Timeline of Events in Matero

Built in 1959, Matero developed as a state rental project for public service workers. It was developed by the British Colonial Administration as a result of the rise in demand for housing among African workers (Mulenga, 2003: 6; Schlyter, 2004: 7). From 1948 through to 1959, 5,097 houses were constructed and occupied by municipal workers (Mulenga, 2003: 7). At independence in 1964, the government of Zambia took over and placed the houses under, what was then, the Lusaka Urban District Council. Later in 1996, sitting tenants living in public housing in Matero were offered to buy the houses and land under 99 year leasehold. At the time of privatisation, Matero was a poor old working class area where workers paid rent to the council. Many of the houses were dilapidated, had no electricity and had only an external water source and pit latrine. According to the Ministry of Local Government and Housing's Circular number 2 entitled "Revised Procedures for Sale of Council Houses", houses were sold at a 100 percent discount because they were old (built during

colonial times) and purchased by the government before 1959. Sitting tenants only had to pay a transfer fee of K10, 500 (US $8) and a surveying fee of K60, 000 (US $50). Those that paid the fees and the cost of the house were to receive their title deed within 30 days (Schlyter, 2004:6).

2.2. George

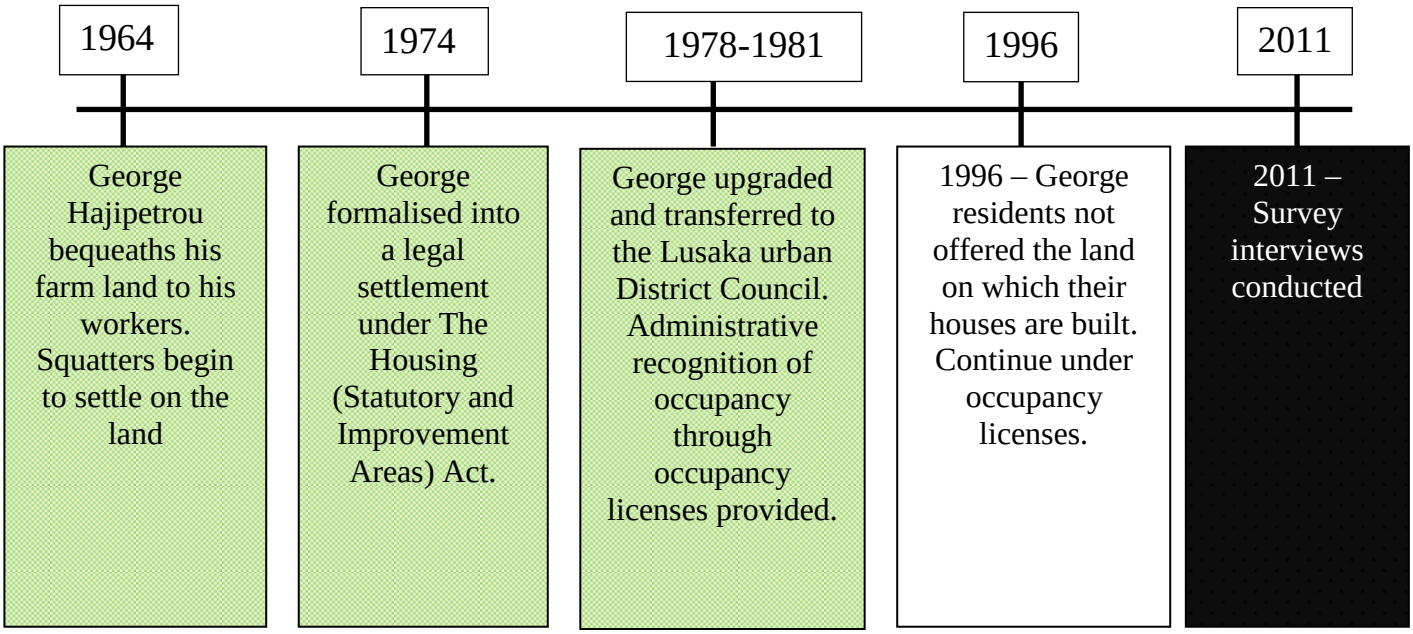

Figure 2: Timeline of Events in George

In contrast, George developed as an informal settlement. It was to be demolished immediately following independence. For political reasons, the state decided to upgrade it. The state upgraded the settlement through the provision of services between 1978 and 1981. In 1981, residents of George received the administrative recognition of occupancy having been issued occupancy licenses. At the time Matero residents were offered houses, George residents were not offered the public land on which their houses were built. Occupancy titles gave residents of George tenure security and access to services with little control over the use of property. Following titling, residents in Matero are allowed to sell their land while those in George are not allowed to do so because the land belongs to the council (Lusaka City Council, 2010). George residents are not allowed to rent out their houses or conduct business on their premises. However, due to weak enforcement of laws, transactions do take place in George despite these restrictions. In sum, the evolution of housing provision in Matero and George can be used to understand the consequences of the provision of property rights through titling.

2.3. Data

Data on the relationships I aimed to test and in the communities I was investigating were not readily available. To obtain the data, I conducted a household survey from July to August of 2011, fifteen years after the privatisation of houses in Matero. I decided to draw a sample that was as close as possible to 10 percent of the number of households that bought houses. There were 5,097 households altogether (Government of the Republic of Zambia, 1996a). This would have meant drawing a sample size of 500 in Matero. Due to financial limitations, a sample of 350 households was chosen. I drew this sample using interval sampling with intervals of 10 houses using a Google Earth map as a sampling frame. For George, the initial idea was to draw a matched sample using the respondents' database from the Zambian census of population as a sampling frame. The database is not publicly available and can only be requested from the Central Statistics Office. I was however not given permission to access this database. I proceeded with drawing an unmatched sample of 350 households from George as the best alternative. This meant that the robustness of the analysis would be weakened but would still be useful in giving an indicative understanding of the effects of titling. I also used interval sampling with Google Earth map as a sampling frame.

My method of data collection was a structured questionnaire administered by 7 enumerators. I conducted training of enumerators over the course of a week. A pilot study was conducted with each enumerator conducting one interview before the end of the training. Then the questionnaire was reviewed according to the comments made. We interviewed heads of households or their competent proxies. In Matero, we interviewed households in which the head was a direct beneficiary, and who held a title deed or deed of sale. In George, we interviewed holders of occupancy licenses, out of approximately 25,000 households.

The realised sample size came to 623 households (89 percent response rate). I obtained a total of 312 completed interviews in Matero and 311 in George. However, only 498 observations were feasible for analysis because some of the observations indicated that they moved into the houses after 1997 despite having bought the houses from the council. It is likely that these are individuals who bought the houses after some sitting tenants failed to raise the required amounts much later after they were offered or obtained the houses through corrupt means. Data were analysed using Stata version 11. The variables used in this paper are summarised in table 1 below.

Table 1: Variable Descriptions

Variable	Response Categories	Description
Dependent Variables		
Property value	Group average	What is the market value of the dwelling (in Zambian Kwacha)?
Credit access	Binary	Have you used this house in any way (e.g. as collateral) to obtain loans or credit? 1 = yes and 0 = no
Employment status	Binary	Employment status of head of household, 1 = employed and 0 = not employed
Employed female	Binary	Employment status of female head of household, 1 = employed and 0 = not employed
Home-based investments	Binary	Has the house been used for any income generating activities? 1 = yes and 0 = no
Logged Per capita income	Group average	What is the total monthly income for this household?
Logged household consumer durables	Group average	Does anyone in the household own the asset listed below in working/running condition? Respondents get a score of 1 for each
Memberships in voluntary associations	Group average	Are you a member of (association/organisation)? Respondents get a score of 1 for each
Political Awareness	Composite, ordinal	Here is a list of famous people, indicate what area of life they are associated with. Do you watch news on television? 1= yes and 0 = no. (Qn 7). Do you read newspapers? 1 = yes and 0 = no
Volunteerism	Ordinal	How often do you do voluntary work? 0 = never, 1 = not often, 2 = often, 3 = very often
Neighbourhood attachment	Group average	Answer if the following statements apply to you. (Respondents get a score of 1 for each that apply and 0 for each that does not apply

Table 1: Variable Descriptions (continued)

Variable	Response Categories	Description
Independent and control Variables		
Leasehold title	Binary	Tenure type, 1 = leasehold title, Matero residents and 0 = occupancy license, George residents
Age	Group average	Age of household head
Gender	Binary	Gender of household head. 1 = male and 0 = female
Education	Group average	Number of years of education completed by head of household
Father's education	Group average	Number of years of education of father of head of household
Mother's education	Group average	Number of years of education of mother of head of household
Household size	Group average	Number of household members residing in the dwelling
Rooms	Group average	Number of rooms in the dwelling
Duration	Group average	How long respondent has lived in the house if year occupied house is before 1997

3. Method

I use both OLS and logistic regression analysis to estimate the effects. The equation to make the estimates is as follows:

$$Yi = \alpha + \gamma \text{Leasehold title}_i + \beta X_i + \varepsilon_i$$

where Y is any of the outcomes under investigation (namely property value, credit access, employment status, employment status of female household head, home-based investments, income per capita, consumer durables, membership in voluntary associations, political awareness, frequency of volunteering and neighbourhood attachment) for observation i; γ is the estimate which provides an indication of the effect of the leasehold title variable (leasehold title being a dummy variable that equals 1 for leasehold title and 0 for occupancy title); X is any of the covariates controlled for, mainly, but not limited to, background characteristics (age, gender, number of years of education, father's number of years of education, mother's number of years of education and marital status); and ε is the error term.

Regression models follow a similar procedure. Models are first run between the respective outcome variable and the dummy for leasehold title. The second model regresses the respective outcome variable against demographic characteristics. The third model adds variables that are considered to be determinants of the outcome according to the respective theory. Essentially, the combination of models is aimed at testing whether leasehold title remains a significant predictor when other observable factors are controlled for. Cross-sectional survey data is susceptible to heterogeneity, which should be addressed in order to satisfy the OLS model assumption of homoscedasticity. In order to satisfy the assumption, all regressions are run using robust standard errors and outcome variables that do not satisfy the assumption of normality are transformed into logs. Because this is a non-experimental design, the estimates I find do not mean that titling has a particular effect measured by the regression coefficient. It rather provides a tentative indication as to whether the variables may be related (or not as the case may be). Although this is the most appropriate estimation method, I cannot control for unobservable factors that may be driving observed variation in the outcome. While the two neighbourhoods are quite similar, they are not the same and so may be affected by different factors. Unobserved factors can only be controlled for in the presence of baseline data which was not available for this study.

4. Results

Table 2 below presents the characteristics of the respondents in Matero and George and compares their mean differences.

There are no demographic differences in terms of age, marital status, father's education, mother's education and household size. Respondents in the Matero sample are likely to be more educated with an average of 9 years, than George residents, who have an average of 7 years ($t(484) = -4.80$, $p=0.00$). However, it also means that the typical respondent in both neighbourhoods is likely to be a school dropout. The proportion of male heads of household in the Matero sample is lower (0.52) compared to that of George (0.64) ($t(495) = 2.80$, $p=0.00$). This difference may be attributed to the original demographics in George where, at the time of settling, only men settled there as unmarried women were prohibited to live in cities at the time. Matero had a section called the married quarters where married workers were allowed to live with their families. Many of the families have remained in their original plots. In fact, respondents in Matero have a slightly lower length of housing tenure compared

to George. On average, my respondents in Matero have lived there for 28 years compared with 31 years for George respondents ($t(479) = 2.74$, p=0.00).

Table 2: Characteristics of beneficiaries of titling in Matero versus George residents

Variable	Matero n=262	George n=236	T
Property value	17.99	17.17	-8.12***
Credit access	0.03	0.01	-1.11
Employment status	0.71	0.67	-0.84
Employed female	0.14	0.07	-2.52**
Home-based investments	0.58	0.65	1.79*
Rooms	5.20	5.70	2.06**
Rent	0.52	0.63	2.29**
Home-based business	0.30	0.31	0.17
Log of Income per capita	11.67	11.29	-4.21***
Household consumer durables	1.61	1.22	-5.48***
Membership in voluntary associations	1.30	1.36	0.81
Political awareness	0.36	0.29	-3.85***
Volunteerism	0.45	0.50	0.83
Neighbourhood attachment	10.52	10.88	1.12
Age	55	54	-0.89
Male	0.52	0.64	2.80***
Education	9	7	-4.80***
Marital status	0.52	0.56	0.92
Household size	6.34	6.19	-0.65
Father's education	6.95	6.76	-0.31
Mother's education	4.67	3.95	-1.27
Duration	27.48	30.58	2.75***

* $p<0.10$ ** $p<0.05$; *** $p<0.01$

As regards the outcome variables, respondents in Matero report higher logged property values (17.99) compared to those from George (17.17). In currency terms, Matero residents report that the average value of their houses is K75.2 million (US$14,500) while those in George report an average of K42.8 million (US$8,200). This difference is statistically significant at the 1 percent level with t(275) = -8.12, p=0.00. Despite their geographical proximity, houses in Matero have a higher property value.

In terms of credit access, there is an insignificant minority of respondents in both neighbourhoods who have used their house as collateral to obtain a loan. Of the Matero sample, 3 percent are able to obtain loans compared with 1

percent for respondents from George. This difference is not statistically significant with $t(496) = -1.11$, $p=0.27$.

Matero respondents are not different from George residents in terms of labour market participation. Matero respondents have a higher proportion of employed household heads at 71 percent while George respondents had 67 percent. The difference is however not statistically significant ($t(376) = 0.84$, $p=0.40$). Similarly, there are no significant differences in the proportion of female heads of household that are employed. Matero respondents have a score of 0.66 percent and George 0.65 percent with $t(148) = 0.06$, $p=0.95$.

With respect to engagement in home-based investments, Matero respondents have a lower proportion compared to those in George. Matero respondents have a score of 0.58 compared with 0.65 for George residents. The difference is statistically significant at the 10 percent level $t(491) = 1.79$, $p=0.07$. This means that Matero respondents are less likely to run businesses compared to George respondents.

Essentially, fewer households in the Matero sample rent out part of their house than those in George. The proportion is 0.52 for Matero compared with 0.63 for George. The difference is statistically significant at the 5 percent level ($t(444) = 2.29$, $p=0.02$).

There are no differences in terms of non-rent-based business investments with Matero respondents scoring 0.30 and George respondents 0.31, $t(274) = 0.17$, $p=0.86$.

Besides, Matero respondents report a higher household per capita income than those in George. The logged per capita income score of Matero respondents is 11.67 compared with 11.30 for George respondents with $t(331) = -4.21$, $p=0.00$. As expected, the variable for household income has many missing observations -- a challenge in many surveys. Often, measures that are less likely to have missing observations, such as expenditure data and durable items, are used as a proxy. Durable items are also used as a crude measure of wealth and this approach is taken in this analysis.

In this regard, Matero respondents have more durable household items than George respondents. Matero households score 1.61 on the logged household durables scale while those in George score 1.22 with $t(488) = -5.74$, $p=0.00$. In real figures, Matero respondents have on average 6 household items while those in George have 4.

With regard to measures of citizen behaviour, Matero respondents report higher political awareness but the same number of membership in voluntary associations, frequency of volunteerism and neighbourly attachment. Matero respondents score 0.36 out of 1 on the political awareness scale while George respondents scored 0.29. The difference is statistically significant at the 1 percent level ($t(484) = -3.85$, p=0.00). Matero respondents belong to an average of 1.30 voluntary associations against 1.35 for George, ($t(475) = 0.81$, p=0.42), 0.45 out of 3 on frequency of volunteerism against 0.50, ($t(493) = 0.83$, p=0.41), and 10.52 out of 18 on the neighbourly attachment scale against 10.89 for George ($t(494) = 1.13$, p=0.26). Attachment is strong in both neighbourhoods; a score of about 60 percent on the attachment scale for both neighbourhoods.

Overall, the results show initial indication of support for the hypotheses that leasehold titling increases property values, female employment, household income per capita, household consumer durables, and political awareness. Counter-intuitively, there is initial support for the hypothesis that leasehold titling leads to fewer home-based investments in general and rent-based investments in particular. Nevertheless, based on T-tests, the strength of these relationships cannot be ascertained. Additionally, the magnitude of association in these relationships cannot be determined unless a natural experiment was being analysed. Correlation and regression analysis are employed to explore these hypotheses and to generate a sense of the likely magnitude of the relationships and relationships of association.

Table 3: Pearson's pairwise correlations between each outcome variable and leasehold title

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1 Leasehold title	1											
2 Property value	0.44***	1										
3 Credit access	0.05	0.04	1									
4 Employment status of Head	0.04	0.01	0.06	1								
5 Employed female head	-0.01	-0.04	0.05	1.00	1							
6 Investments	-0.08*	0.06	0.01	0.04	0.00	1						
7 Income per capita	0.23***	0.18***	0.08	0.05	0.07	-0.02	1					
8 Log consumer durables	0.25***	0.21***	0.11***	0.06	0.07	0.05	0.38***	1				
9 Memberships	-0.04	0.08	0.05	-0.08	0.01	0.01	-0.02	0.18***	1			
10 Political Awareness	0.17***	0.15***	0.06	0.17***	0.01	-0.02	0.25***	0.51***	0.23***	1		
11 Volunteer frequency	-0.04	0.06	0.03	-0.14***	-0.02	0.11***	-0.06	0.13***	0.29***	0.21***	1	
12 Neighbourhood Attachment	-0.05	-0.08	0.01	-0.13***	0.00	0.05	-0.07	-0.13***	0.04	-0.10**	0.06	1

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 3 reports the correlations between leasehold title (i.e living in Matero) and each of the dependent variables. The correlation coefficient is a measure of the strength and direction of the relationship. The correlations reveal that leasehold titling is positively correlated with property value (r=0.45 (p=0.00)), household per capita income (r=0.23 (p=0.00)) and household consumer durables (r=0.25 (p=0.00)) and political awareness (r=0.17 (p=0.00)). This means that a change in leasehold titling from 0 to 1 is accompanied by an increase in the above-mentioned outcome variables. Leasehold titling is negatively correlated with home-based business investments in general (r=0.08 (p=07)). This is a very weak relationship which means that the same change in leasehold titling is accompanied by a reduction in home-based business investments. There is no correlation between leasehold titling and access to credit, employment status, employment status of female heads of household, membership in voluntary associations, frequency of volunteering, and neighbourly attachment. This means that the same change is accompanied by no change in these outcome variables.

The correlation analysis informs us that the strengths of the relationships are generally weak for the variables that are correlated with leasehold titling. Correlation analysis however does not provide us with an indication of the magnitude of the change in the outcome variables that can be associated with a leasehold title. I employ regression analyses to provide such estimations and only the hypotheses found to be correlated with leasehold titling are tested.

Table 4 below reports the OLS regression of property value against leasehold titling and other covariates and shows that leasehold title is associated with property values 70 to 80 percent higher. The bivariate regression in Model A reports property values 82 percent (β=0.82) higher than those for occupancy title. When demographic characteristics are included in model B, the regression coefficient reduces to 74 percent (β=0.74). The explained variation increases to 23 percent (R^2=0.23). When I include employment status, secondary employment and per capita income variables, the coefficient shows property values higher by 80 percent (β=0.80). The explained variation rises to 34 percent (R^2=0.34) in the final model. In all the models, the regression coefficient is statistically significant at the 1 percent level indicating that this is not a chance occurrence. The finding remains robust with various controls; the leasehold titling variable does not lose significance when demographic and other variables are included in the models.

Table 4: OLS regression of property value against titling and other covariates

Independent variables	(1) Model A	(2) Model B	(3) Model C
Leasehold	0.82***	0.74***	0.80***
	(0.10)	(0.11)	(0.14)
Age of household head		0.00	0.01
		(0.01)	(0.01)
Male		-0.13	-0.06
		(0.13)	(0.13)
Education		0.05***	0.01
		(0.01)	(0.02)
Household size		0.02	0.04
		(0.02)	(0.02)
Employment status			-0.23*
			(0.12)
Employed members			0.34***
			(0.13)
Per capita income			0.32***
			(0.08)
Married		0.06	
		(0.12)	
Constant	17.18***	16.51***	12.70***
	(0.09)	(0.33)	(1.12)
R-squared	0.19	0.23	0.34
Observations	277	254	151

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

By interpretation, the results merely show that there is a significant difference in property values between Matero and George households. However, this analysis cannot reveal with certainty that this difference is attributed to titling. The evidence is at least exploratory and at best indicative of titling being responsible for higher property values. Pre-titling data on property values in both neighbourhoods would be useful in strengthening the analysis. The survey did not include variables such as ease of accessibility of water services, tarred roads and the existence of a planned grid, all of which are factors that favour Matero over George.

Table 5 below reports the regression of home-based investments against leasehold titling and demonstrates that titled households are associated with a lower probability of running home-based investments but this effect disappears when the variable number of rooms is introduced into the equation. This suggests that the observed effect of titling is actually explained by the number of rooms and not property title. In Model A, respondents from titled households are

found to have lower odds relative to George respondents by 0.33. In Model B, the odds further reduce to 0.41 when demographic variables are included. The explained variation rises to 1 percent. In the final model, the title variable ceases to be statistically significant once the number of rooms variable is included in the equation. The explained variation rises to 17 percent. Essentially, the evidence suggests that all the variation is explained by the number of rooms a household has from which it can be inferred that almost all home-based investments are rental investments.

Table 5: Logistic regression of home-based investments against titling and other covariates

Independent variables	**(1)** **Model A**	**(2)** **Model B**	**(3)** **Model C**
Leasehold	-0.33* (0.19)	-0.41** (0.21)	-0.01 (0.30)
Age of head		-0.01 (0.01)	-0.00 (0.01)
Education		0.02 (0.03)	-0.05 (0.04)
Married		-0.18 (0.21)	-0.29 (0.28)
Household size		0.04 (0.04)	-0.08 (0.05)
Log of household durables			-0.02 (0.23)
Employed			0.15 (0.31)
Rooms			0.48*** (0.08)
Constant	0.64*** (0.14)	0.87 (0.56)	-0.68 (0.86)
Adjusted R^2	0.01	0.01	0.17
Observations	493	445	298

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As a robustness check, a logistic regression analysis was employed with only rent-based investments as the dependent variable. The effect of leasehold titling disappears and the effect of rooms on rent investments increases from an odds ratio of 0.49 to 0.58. The explained variation also increases significantly to 21 percent (R^2=0.21). The analysis reveals that whilst property rights are trivial,

the number of rooms are important in households running businesses, the predominant business being renting out a room.

Table 6: OLS regression of household income per capita against titling and other covariates

Independent variables	**(1) Model A**	**(2) Model B**	**(3) Model C**
Leasehold	0.38*** (0.09)	0.28*** (0.09)	0.32*** (0.10)
Age of head		-0.01** (0.00)	-0.00 (0.00)
Male		0.02 (0.10)	0.05 (0.11)
Education		0.06*** (0.01)	0.05*** (0.01)
Married		0.22** (0.10)	0.27** (0.12)
Household size		-0.11*** (0.02)	-0.12*** (0.02)
Rooms			0.05*** (0.02)
Employed			-0.01 (0.11)
Employed members			0.11 (0.12)
Constant	11.30*** (0.07)	11.82*** (0.22)	11.44*** (0.28)
R-squared	0.05	0.28	0.34
Observations	333	309	237

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Thus far, the evidence indicates that there is no effect of leasehold rights on the mechanisms through which it increases household per capita income; leasehold titling has no effect on access to credit, employment status, employment status of women, or on home-based investments. Surprisingly, the evidence indicates that a leasehold title is positively associated with household per capita income. Table 6 above reports that household incomes are between 28 and 38 percent higher among Matero respondents compared to George respondents. The bivariate regression in Model A reveals that leasehold titling is associated with a coefficient of β=0.38. This means that per capita income among Matero respondents is 38 percent higher relative to those in George. The explained variation is 5 percent (R^2=0.05). When I add the demographic variables, particularly education, to the regression equation, the coefficient reduces to

β=0.28 (28 percent higher). The explained variation increases to 28 percent which is a good model fit. In the final model, I find that respondents in Matero have per capita incomes 32 percent higher (β=0.32). The model fit is good with R^2=0.34.

There are many reasons why titled respondents may have higher income. It could be that one or more of the mechanisms are actually working but the data and methods used cannot pick it up. This result can also be attributed to some unobserved factors not controlled for – the two main reasons being pensions and remittances. Although both neighbourhoods have pensioners, it is possible that Matero has more given that its' residents had to be in formal employment to access a house. Matero residents may also be benefitting from higher remittances from children. Furthermore, it is also possible that, after obtaining ownership, Matero respondents have become more successful at lobbying for extended family support (Schlyter, 2004: 7) which results in higher income. However, these dynamics can only be speculated.

Returning the focus to the data, despite the fact that Matero respondents have fewer odds of engaging in home-based investments, average incomes from rent is higher among Matero respondents. Although the difference is not statistically significant, Matero respondents report earning an average of K224,864 compared with K209,098 in George. Employment status is also higher in Matero (71 percent of household heads) compared to George (67 percent). Despite the fact that these differences are not statistically significant, incomes from these small differences can become significant. Another problem could be that the measure is not functioning well. This last point is addressed in the regression of household durables against leasehold titling. These measures are correlated (r = 0.38, p=0.00).

As in the regression analyses above, the result is merely an indication of the possibility that titling or property rights may be associated with higher income.

The results reported in table 7 below reveal that, in line with having more household per capita income, households with a leasehold title have more wealth as measured by household durables. The Models report that Matero respondents have between 28 and 40 percent more consumer durables. In Model A, titling is associated with 39 percent (β=0.39) more wealth relative to occupancy licenses (R^2=0.06). Controlling for demographic variables, leasehold titling is associated with 28 percent (β=0.28) more consumer durables and the model explains 30 percent of the variation (R^2=0.30) which is a good model fit. Controlling for number of rooms and employment status, the regression coefficient shows titling to be associated with 33 percent more durables with the model explaining 37 percent of the variation (R^2=0.37), an even better measure of good fit. The

coefficients are very similar to those for the regression of logged household income per capita which shows that the measures are interchangeable with the household durables variable having more observations and the models explaining more variation.

Table 7: OLS regression of consumer durables against titling and other covariates

Independent variables	**(1) Model A**	**(2) Model B**	**(3) Model C**
Leasehold	0.39*** (0.07)	0.28*** (0.07)	0.33*** (0.07)
Age of head		-0.01*** (0.00)	-0.01*** (0.00)
Male		0.01 (0.07)	0.01 (0.08)
Education		0.08*** (0.01)	0.07*** (0.01)
Married		0.01 (0.07)	0.01 (0.07)
Employed members			0.20*** (0.07)
Rooms			0.06*** (0.01)
Constant	1.22*** (0.06)	1.03*** (0.17)	0.67*** (0.17)
R-squared	0.06	0.30	0.37
Observations	438	407	389

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Additionally, I test the hypothesis that property rights are associated with more political awareness relative to occupancy tenure. Table 8 reports the regression of leasehold titling against political awareness and reveals that property rights are associated with more political awareness. The bivariate model reports a regression coefficient of β=0.07. On the scale, this means a level of political awareness 7 percent higher. The coefficient is statistically significant at the 1 percent level and the explained variation is 3 percent which is not a good model fit. Controlling for demographic characteristics, including education which is higher among Matero respondents and likely to influence the result, the coefficient reduces to β=0.03 or 3 percent with a good model fit (R^2=0.29). The significance level reduces to 10 percent meaning that much of the effect comes from the level of education but that titling has its own independent effect. In the final model, in which I include belonging to a political party, the regression

coefficient remains at β=0.03 significant at the 10 percent level. The model fit is good with R^2=0.30.

Table 8: OLS regression of political awareness against titling and other covariates

Independent variables	**(1) Model A**	**(2) Model B**	**(3) Model C**
Leasehold	0.07***	0.03*	0.03*
	(0.02)	(0.02)	(0.02)
Age of head		-0.00	
		(0.00)	
Male		0.00	0.02
		(0.02)	(0.02)
Education		0.02***	0.02***
		(0.00)	(0.00)
Household size		0.01*	0.01**
		(0.00)	(0.00)
Married		0.02	
		(0.02)	
Member in political party			0.01
			(0.03)
Constant	0.29***	0.13***	0.06**
	(0.01)	(0.05)	(0.03)
R-squared	0.03	0.29	0.30
Observations	486	439	460

Note: Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Residents of Matero obtained housing through a politicised process. Matero and George have historically had a reputation for being highly political neighbourhoods (Rakodi and Schlyter, 1981). In 1975, George was one of the areas that was meant to be demolished. In order to gain political support from the area however, President Kaunda decided to upgrade it. Similarly in Matero, many believe that the then President Frederick J.T. Chiluba, fearing to lose the 1996 election to then former president Kenneth Kaunda, decided to offer the houses to sitting tenants in order to win their support. It can be inferred that this was the reason why a presidential directive was issued to sell the houses even though the National Housing Policy did not provide for privatisation of public housing.

With this background, the regression models suggest that titling is associated with political awareness especially in contexts where the process was politically motivated.

5. Discussion

In this paper I set out to examine the economic and non-economic effects of property rights by evaluating the effects of leasehold titling in Matero using occupancy licenses in George as a comparison. I set out to test eleven hypotheses; leasehold titling has an effect on property value, access to credit, employment status of household heads, employment status of female household heads, home-based investments, household per capita income, household consumer durables, membership in voluntary associations, frequency of volunteering, political awareness and neighbourhood attachment. The results are exploratory and at best symptomatic due to problems in the process of data collection. A lack of existing survey data on the subject in these neighbourhoods meant that I had to collect and analyse survey data to test these hypotheses. The data was meant to be collected by first drawing a random sample in Matero and then matching that sample with a sample from George on the basis of a similarity of a wide set of characteristics. The matching was not possible because a sampling frame could not be accessed. An alternative decision was made to draw a random sample in George using interval sampling. This meant that the result would be less robust and by no means satisfy the assumptions for a causal argument to be made.

Given this background, I find that leasehold titling is associated with higher property values. My estimate is that property values rise to about 80 percent more than that of households on occupancy tenure. This is a combined value of the land and house. Elsewhere, titling has been found to substantially increase property values. My own estimate is on the higher end comparable to that of Dowall and Leaf's in their work with land brokers in Jakarta, Indonesia, who found an increase of 73 percent (Dowall and Leaf, 1991), and Alston, Libecap and Schneider who reported a 100 percent increase in Brazil (Alston*et al.*, 1996). Other studies reporting a high increase include Jimenez in Davao, Philippines who found a 58 percent increase in value (Jimenez, 1984) and Dowall who finds an increase of 45 percent in Indonesia (Dowall and Leaf, 1991). Most studies however estimate an increase of around 25 percent in Ecuador (Lanjouw and Levy, 2002), in Peru (Cantuarias and Delgado, 2004) in Indonesia (Dowall, 1998) and in Manila in the Philippines (Friedman *et al.*, 1988). My own estimates include post-titling housing improvements and may also be slightly higher because of respondents who reported the value comparing that of their neighbours instead of valuation by the land surveyor. More broadly, however, land and housing prices have appreciated in Lusaka in particular and Zambia in general. Further research would benefit from using actual price valuations from land surveying departments to estimate property values.

Despite high increases in property values, my evidence tentatively indicates that there is no association between leasehold titling and access to credit. Out of my entire sample, 98 percent did not use their house as collateral to access credit. I find no systematic scholarly studies investigating the effect of titling on access to credit in urban areas of Lusaka. A study on rural Zambia finds that small-scale land-holders are wary of using their land as collateral even when they can access credit (Home and Lim, 2004). Elsewhere, the findings are ambiguous with a leaning towards no effect of titling on credit access (Field and Torero, 2006; Boudreaux, 2008; Galiani and Schargrodsky, 2010; Lemanski, 2011). Future research should focus on the role of culture in influencing credit.

Similarly, my evidence does not support the hypothesis that leasehold titling has a positive effect on labour market participation. Their probabilities of employment are the same. Correspondingly, the assumption that leasehold titling has a positive effect on employment status of female heads of households was not supported. Given the conditions of high unemployment, widespread poverty and high income inequality in the country, titling is unlikely to lead to increased employment if the economy in general cannot support a larger labour force. Elsewhere, studies find positive effects of titling on household labour participation and hours allocated to activities outside the home mainly through the mechanism of tenure security (Field, 2005; Field and Torero, 2006; Field, 2007) while others find no significant effects (Rose, 2006; Galiani and Schargrodsky, 2010). In Senegal the impact of titling on the economy of families is "limited and barely measurable" which means that titling barely has an effect on labour market outcomes (Payne *et al.*, 2009). Further research is required as to what the optimal economic conditions are for titling to have a positive effect on labour market participation either through increases in home businesses or increases in tenure security.

Congruently, I do not find evidence in support of the assumption that leasehold titling increases home-based investments. Work from scholars on perceived tenure security can help explain this result. It has been shown that psychological pathways of thinking and feeling influence how dwellers make decisions about the probability of eviction and determines their level of fear of eviction (Reerink and Van Gelder, 2010; Van Gelder, 2013). It is clear that respondents in George feel that even if they engage in activities that go contrary to their terms of occupancy, they will not be evicted. They are then able to engage in businesses from that perspective. Further, enforcement of the terms of occupancy by the Lusaka City Council seems absent. It would cost the Lusaka City Council more, both economically and politically, in terms of unrest if they enforced many of the terms of occupancy. More research on this mechanism is required, particularly ways through which new title holders finance their home-businesses using the title when they cannot access credit.

Notwithstanding, I find uncertain evidence that leasehold titling increases household per capita income. My evidence shows that the mechanisms by which this is likely to occur do not work. Due to the limitation of having no baseline in my data, there is a likelihood that the mechanisms are working but the evidence cannot pick up the effects. It is likely that higher property values attract higher income from rent. Following titling, Schlyter (2004: 7) documented the practice of raising finances for houses in Matero through the extended family in order to make extensions. Due to a still strong extended family system, houses are viewed as family homes despite being in the name of one person or several siblings. Such contributions can be exchanged for domicile rights. It is possible that this is a factor contributing to higher household income. In other studies, the evidence focuses on higher income generated through the mechanism of labour market participation and hours allocated to activities outside the home (Field, 2005; Field and Torero, 2006; Rose, 2006; Field, 2007; Galiani and Schargrodsky, 2010). Other mechanisms need to be explored. Most research was targeted at access to credit but this does not generally work. Title holders opening businesses is such a mechanism that requires further testing. My study therefore suggests that by virtue of having a title or tenure security, the poor in Lusaka can open small home-based businesses and obtain an income.

Moreover, my findings indicate indeterminately that leasehold titling increases wealth as crudely measured by household consumer durables. This contradicts the findings of Galiani and Schargrodsky (2010: 716) who found no significant relationship between property rights and durable asset consumption. The main difference is that my study had a longer list of durable items as compared to that of Galiani and Schargrodsky (2010: 716) who had only included a refrigerator with freezer, refrigerator without freezer, washing machine, television and cellular phone. Further, Galiani and Schargrodsky's (2010:716) models use a dummy variable for possession of each asset relative to the lack of possession of that asset as a dependent variable while my study uses an index of a more exhaustive list.

The hypothesis that leasehold titling is associated with more memberships in voluntary associations is not supported. Likewise, I do not find evidence that leasehold titling increases the frequency of volunteerism. Volunteerism is generally not a widely practiced activity in Zambian communities, particularly among the poor who spend most of their time trying to fulfil their most basic needs. One other study examining this hypothesis among 17 Latin American countries finds no effect of titling on membership in voluntary associations (Pecha and Ruprah, 2010).

Nonetheless, the findings provide indefinite support for the hypothesis that leasehold titling increases political awareness. In contrast, there is no evidence

supporting this hypothesis in Latin American countries (Pecha and Ruprah, 2010).

Furthermore, leasehold titling is not related to neighbourhood attachment. However, social attachment is strong in both neighbourhoods. This could be attributed to the fact that social relationships in the two neighbourhoods have been stable for a long time such that neighbours know, trust and understand one another well. In both neighbourhoods, respondents have lived an average of about 30 years during which they have built strong social networks.

6. Conclusion

This study demonstrates that effects of titling in Southern Africa extend beyond economic effects. These have thus far been understudied in the literature. Scholars need to go beyond examining economic effects and focus on both human and social capital effects. Since titling had no effect on important economic measures, it is likely that poverty in Matero is driven so strongly by factors such as overall unemployment levels in Zambia that property rights make little difference to urban poverty. More evaluations of this nature need to be carried out in Southern Africa and Africa as a whole to contribute to an understanding of how property rights may help improve conditions of poverty in urban areas.

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