
The Roles of Establishing Real Property Registration System for Municipal Property Taxation in the Case of Dire Dawa, Ethiopia

Markos Belayhun

Department of Land and Real Property Valuation, Dire Dawa University, Dire-Dawa, Ethiopia

Email address:

Markosbelayhun12@gmail.com

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Abstract: Property taxation is one of the means to generate revenue by government for the local developments. To improve the property taxation government needs to ensure that its property records contain information that is beneficial to collect property taxation. Introducing a real property registration system that has complete contents and mechanisms to regular updating is the most important tool to support the property taxation system. With regard to this, many authors have discussed about the practice of the real property registration system in general, but not enough researches have been carried out to the role of establishing a real property registration for municipal property taxation. The objective of this study is to describe the importance of introducing a real property registration system for property taxation system improvements. Mixed research approach has been used to collect and analyses data. Field activities including questionnaires, interviews and direct observation were undertaken in order to get information on the current situation of the property tax system and land registrations. Based on the analysis, the need for the property taxation in the study area, the gaps in the information provided by the current land register were identified. The results showed that the establishment of a real property registration system facilitated the property taxation process and consequently maximize property based revenue. There is a direct strong relationship between real property registration system and improvements in property taxation. The study recommended that the current registration system should be remodeled to include the vital information such as property value, owners address and tax amount that is desired to collect property taxation. Comprehensive real property policies, cost effective systematic registration and computerizing the records were suggested to improve the current deficiency of land register.

Keywords: Property Tax, Real Property Registration, Correct, Update, Complete

1. Introduction

The Ethiopia land registration was designed to support juridical/ legal aspects of ownership security and hence the emphasis was towards ownership rights registration. Besides, the design of the content and format of the register did not take into account the needs of property taxation [1]. Nevertheless, property taxation has an essential role in the overall development of local governments by producing a significant amount of revenue and funding for local infrastructure development [11]. This reality implies that the role of the land register can no longer be limited to juridical/legal, but will continue to expand to support the property taxation purposes.

The inefficiency in the current land registration is visible in the high taxable property exclusion and tax evasion, in which a reasonable component to collect property information, is either nonexistent in the register or is poorly recorded. Even though there are observable incompleteness and incorrectness in present land registration activities, previous and current efforts to improve the property register have been emphasizing on rehabilitation of records, to make ownership secure.

However, no attempt has been directed towards redesigning the registration to align it with the needs of the escalating and changing property taxation. Consequently, this situation makes a constraint to supply urban services and undertake the necessary infrastructure development in city

under this study, which needs to improvise internal revenue generating projects to reduce dependency on federal and other funding. If the land record is not re - designed to focus on the needs of the property taxation, the role of taxation in national as well as local development and other strategic development plans of Ethiopia would be hampered.

Ethiopia had no real property registration system for taxation purpose. As a result of this, it's complicated to collect considerable property tax and to manage with the need for registering the process of real property transactions as well as the rapidly changing patterns of land use related with the accelerated urban growth. As a result of this, incapability to increase their income base and alteration of urban real property market emerge. Moreover, the absence of reliable information especially real property related is the most essential obstacle for the collection of property tax in urban centers.

Therefore, inefficiency of land administration, real property registration and also the loss of effective law and proclamation regarding to property taxation and valuation, the absence of essential information to collect property taxation which has been exposing the city's development become decline inspired the researchers to undertake this study. Within this, the researchers have been initiated to study, on the title enhancing municipal revenues through remodeling land registration system in Ethiopia to describe the existing deficiencies of land registration system to support property-based revenue and to remodel land registration system to enhance municipal revenues.

Objective of this reserach article is to examine and evaluate the impact level of land registration attributes on property based municipal revenues in the city and to show the contribution of introducing real property registration system to municipal property taxation in the town.

2. Theortical Literature Review

2.1. Concept of Real Property Registration

According to UN-Habitat [42], real property registrations are map based, combining of a geodetic control network, a coordinate system, cadastral maps, land register, building attributes, assessed and market estimation value and detail information taxpayers. The explanation is clearly defined real property registration and it is indicated that real property registration have an absolute important information that support property taxation activities. Therefore, for countries do not have a real property registration like Ethiopia, it is highly recommended that introducing a real property registration that linked the personal register with the property register, to have efficient property tax collection performance. As indicated by McIlhalton (2013) to be modernizing real property registry, computerizing the records by using geographic information system (GIS) is essential.

2.2. Suitability of Real Property Registration

To be more appropriate for efficient and effective property

taxation, real property registration must meet certain requirements, such as completeness of real property records, correctness of records, updating and sharing essential property information [2].

2.2.1. Completeness

Completeness of real property records are defined by different authors and organizations such as NEN [39], Cagdas [34]. and Oreyema [41] as it's the presence or absence of features and attributes of property information in registry. Furthermore, those authors indicated that, to be suitable for property taxation real property registry should provide value of properties and address of responsible person. However, their explanation is in a shallow way and do not well define completeness of real property records. Therefore, it is possible to define completeness of real property records as an absolute cadastral coverage of real properties within a specific jurisdiction with desired contents. As indicated by those scholars, real property registration should have detail information of property owners, information of real property and charge or tax information to be appropriate for taxation activities.

2.2.2. Correctness

Correctness is concerns the correspondence between the situation in reality and the content of real property registry. Bittner & Frank. A, [43]. and Agrawal [44]. defined correctness of real property records as the accurate measurements and recording of properties information on property registration repository and the authors are properly define correctness of real property records. Therefore, correctness of real property records are capturing accurate information of properties such as it is value, use type, land grade, building type, owner detail and etc.

2.2.3. Updating

Clarke indicated that, property registration updating is very important for tracking all new taxable items as well as subdivisions, merges, and other changes that can affect the properties [35]. The reality on the ground also confirms the idea of the author, thus having an updating mechanism for real property records are vital to perform property taxation effectively. Similarly, according to Hensen [13], a property register loses its value when the stored information is not updated. Therefore, to have updated information of taxable properties, all changes in the property (property use, property value, size...etc) or in the owner (sale, inheritance, gift, etc) should be capture timely.

2.2.4. Data Sharing

According to Ali [2], data sharing is need a set up clear procedures and requirements for acquiring data, access to data and data dissemination among concerned institutions. Similarly, other authors such as Tulandhar, [22] and Bird & Slack, [33] explain the importance of data sharing as reducing the fragmentation of information. Imiru et al., [37] and Kopanyi [38] indicated that the deficiency of data sharing is the cause for bulky and expensive procedure of data

availability. The authors are clearly defining data sharing and its importance. Therefore, to perform property tax activities effectively, data sharing mechanism and system is vital.

2.3. Contributions of Real Property Registration System

Benefits of property documentation apply both to individuals and the state. Each entity has gains from having property registered. Henssen & Williamson [13] points out that the private function of property registration is related to the advantage which individual citizens get while the public function of land registration relates to the welfare of the state and community as a whole. Real property registration system enables government to establish an efficient and equitable system for justified levying of land or property tax. This tax, based on realistic value, needs information on location, size and ownership or stewardship of the land or property.

According to and Larsson [35], property registration offers legal land security and protection for both the owner of the registered land and other parties who have interests in that particular registered land. With parties having confidence in the use and ownership of the land without being threatened by insecurities like evictions, it results into possibilities of making long term investments on land and maximize voluntary taxpaying situation that reduces the number of steps involved in property tax collection. Zevenbergen [30], described that the establishment of a property registration system is made easy the process of property tax administration. Similarly, Tulandhar [22] indicates that the availability of a comprehensive system of property registration was reducing the cost and time spent in property taxation activities.

According to Mukarage [19] and Walters [25], the improvements in a real property registration system in terms of completeness, correctness, updating and sharing of information has an essential role in maximizing property based revenue. Land documentation makes transactions on land between the involved parties easier, cheaper and more secure which heightens the land market. Consequently access to land is improved; conveyance of unregistered land is often expensive, unsafe and takes a long time. As a result the number of registered property is enhanced that simplified the access of property information [10].

According to Carvalho [7] fairness in tax payment distribution has both horizontal and vertical components. Horizontal fairness considers equal treatment of taxpayers who have equal capability to pay taxes. Vertical fairness concept holds that the tax burden should rise with the increase in income. The existence of basic information of real property registration system minimizes unfair taxation system by including all properties and individuals who hold property to the property taxation system. The availability of long - term credit by using titled land as a security in urban areas leads to increased land development and an improved land value, consequently property tax amount. Registering a real property has an essential role to encourage the attitudes of property owners towards paying property taxes voluntarily [18].

All scholars who are included in this sub section clearly

indicated that the existence of efficient real property registration system has essential contribution on improvements of property taxation and their explanation is also confirmed in practical activities. Therefore, as clearly indicated by different scholars, introducing a real property registration system is important to alleviate the current challenges of property taxation in Ethiopia.

2.4. The Relationship of Real Property Registration and Property Taxation

Different scholars are indicated that the existence of strong relationship between real property registration and property taxation. For example, Williamson et al, [26] recognized that recording real property information and documenting evidence of ownership enhances revenue from property taxation. Similarly, Bahl et al [4], indicated that productive property taxation is not possible without all land and improvements are well identified. On the other hand, Zoneh, [32] indicated that property taxation is essential to protect land speculation by levying high property tax that push the owner to use the land in efficient way.

Therefore, as indicated by those authors in one way or the other, having and using an effective real property registration system will contribute to the improvement of the taxation system and consequently will strengthen the state's financial capacity resulting from the increase of revenue for public finances and this is confirmed on the reality world. Moreover, the ability of improving property taxation is depended on update information of the taxable property and its availability.

2.5. Real Property Registration System and Property Taxation in Ethiopia

2.5.1. Real Property Registration System in Ethiopia

In Ethiopia, the first real property registration proclamation was enacted in 1907. The proclamation was enacted during emperor Menelik II to realize the need for land-related law to answer the interest of foreign embassies regarding secured land plots. It provided procedures for the registration and transfer of landholding and the issuance of title deeds, as well as property taxes and the like. Thus the landowners were to be given a certificate referred to as "Yerist Woreket" (title deed), which was to be written in Amharic and French with a map showing the boundary of the land. During Emperor Haile Sellasie, the Ministry of Land Reform and Administration was engaged in measuring and registering land in collaboration Mapping Agency [29].

The first proclamation was changed for the first time by immovable property registration articles included in the 1960 Civil Code of Ethiopia which was marginalized by the 1975 urban land and extra housing reform that changed the urban land tenure system (1). After the land reform of 1974, during the Derg period, the newly established lower administrative structure peasant Association (PA) was given the power of registration including the boundary of the area which they are responsible.

The information collected in the registry was used for taxation and land redistribution. The uses of the land had no document except their tax receipt. Rahmato [20], explains that during the military regime there was a need to establish and maintain a modern system of land registration, to design and implement land use programs and to undertake land surveys to aid in the land reform process. However, this was not possible due to internal political strains.

In contemporary situations, the federal government of Ethiopia focused on developing a legal cadastre. In 2014 Ethiopia enacted the 818/2014 urban landholding registration proclamation. This proclamation intends at creating a harmonized cadastral system in the country. As a result different organizational reforms are being established in federal and in regions [1]. However, Ethiopia had no real property registration system for taxation purposes. Likewise, the absence of reliable information especially real property related is the most essential obstacle for the collection of property tax in Ethiopia urban centers [21]. Accordingly, the creation of an up-to-date and efficient real property registration system can do much to improve these and other related problems.

In Ethiopia, there were no appropriate policies and laws for modern real property development. Although the government of Ethiopia worked on various activities in modernizing existing real property administration system, the absence of independent policy, law and organizational frameworks of property management are still the main challenges. Currently, there were no clear rules and regulation of real property registration, data sharing and access, technical standards and specification, and responsibility and accountability of stakeholders [28].

The lack of rules and regulations led the underdeveloped legal cadastre being heterogeneous and disintegrated. In a contemporary situation, a new urban land management policy was issued for the first time. It aims at creating improved urban land administration that would create rights and obligations of urban dwellers. Additionally, different laws were issued both at national and regional level following this policy. For example, landholding registration proclamation 818/2014 is intended as the basis for creating a harmonized cadastral system in the country.

2.5.2. Property Taxation

Property taxation is one of the means used to finance local governments in many countries. It is about the collection of property taxes and fees from owners according to the provision of law. According to Mukarage, [19], the process of property taxation involves five steps namely the identification of taxable property, valuation of properties, assessment, billing and collection of tax payments. Tax revenues not only constitute the main source of national income and especially of local government's revenue, but also they facilitate social development [10]. They are used by government to finance its project for the benefit of the citizens; like health care facilities, education, public transport, electricity, water and etc. However due to

deficiencies in identification of taxable properties many countries are facing problems in tax collection [35].

2.5.3. Property Taxation in Ethiopia

In Ethiopia, the idea of property tax was formally enacted in 1937 by proclamation 74/1937A. Starting from that time many legal documents related to land and houses were declared for levying a tax on land and houses. However, some data indicate that even if the first proclamation of property tax was enacted in 1937 its implementation was started from 1957. The experience of the municipalities around the world showed that property tax covers ample share of expenditure and reaches up to 86% however in Ethiopia the share is less than 2.4%, and its share decreases from year to year due to increase in other sources of tax revenue [12].

The problem regarding the property tax system is complex and reforms were ignored. The coverage of unregistered properties on the tax system, poor data management system, outdated data and tariff rate, absence of market-oriented tax assessment system and low collection and enforcement effort are the main challenges. If such situations are left to continue, cities/towns will fail to be the center of modernization and transformation. At the policy level revenue collection falls under the responsibility of the Ministry of Revenue (MoR). Property-based revenues are collected by revenue authority on behalf of and for municipalities [14].

2.6. Empirical Literature Review

2.6.1. Selected Country Experience

The selected country has been based on having best practices on the property registration system. The one country which are Rwanda was improving her property tax administration system by introducing a real property registration system. Thus, the researcher has assessed the system by reviewing different published and unpublished documents to obtain in-depth information.

2.6.2. Real Property Registration Systems in Rwanda

The selected countries have been based on having best practices on the property registration system. Those countries which are Rwanda were improving her property tax administration system by introducing a real property registration system. Thus, the researcher has assessed the system by reviewing different published and unpublished documents to obtain in-depth information.

By the late 1990s, the government of Rwanda recognized land as a critical issue in the country's long-term development. Rwanda's government Vision 2020 envisioned in the year 2000 and the 2002's poverty reduction strategy paper listed land as a priority. The Constitution of Rwanda passed in 2003 states 'every person has the right to private property' at article 29. The national land policy and the law governing land in Rwanda were consequently adopted in 2004 and 2013 respectively. The law outlined new procedures for land tenure, titling, registering, administering land, and land titles [36].

The implementation of land tenure regularization support program which ran from February 2007 - August 2012 comprising two primary objectives. Firstly, to ensure that all rightful landholders in Rwanda acquired legally valid land title documents so as to minimize disputes in land. This required surveying all land parcels in Rwanda and providing land titles to all rightful claimants nationwide. Approximately 10 million parcels were registered through a low cost, community-based land tenure regularization process over five years [19].

Secondly, closely linked to the titling process, was the establishment of a strong land administration system through proper recruitment of staff, training, and equipping the 30 district lands offices. The government of Rwanda put into use innovative communication strategies to ensure that the public was made aware of the new program, which proved effective. The methods were used to appropriately target and communicate to different audiences in different areas; this included land administration staff, district offices, and urban and rural populations. The youth, vulnerable groups, women, orphans, and widows were also put into consideration.

Currently, Rwanda stands out among African countries for having recently completed a nationwide first-registration program that covered 11.6 million parcels [14], thereby helping to establish the full cadastral database now commonly referred to as the land administration information system (LAIS). LAIS contains spatial and textual data for all registered land parcels in Rwanda; each parcel is unambiguously identified and mapped via a unique parcel identifier (UPI). The UPI is used to link via web services to the mortgage registry maintained by the Rwanda development board and can also be accessed by the Rwanda revenue authority. Sale prices are registered for all properties transferred and, because registration fees are independent of registered property values, incentives for misreporting are minimized.

As a result of modernizing land registration system, Rwanda was starting to collect high amount of property tax revenue for local development. According to Mukarage [19], the study conducted in three districts of the country indicated that, the property tax can enhance by 135% when comparing before land registration. In line with this, the study also shows that with the real property registration program the numbers of

taxable properties are increased by 299 percent.

The best experience from Rwanda indicated that systematic land registration has vital role to improve property tax collection performance. The performance of Rwanda also confirms that there is an ability to introduce a real property registration system in developing counties including Ethiopia. Therefore, in Ethiopia it is possible to introduce a real property registration system since Ethiopia has a vibrant and innovative youth who are able and willing to provide ICT solution and other systems.

3. Methods of Study

3.1. Reserach Methods

Mixed research approach (qualitative and quantitative) had been adopted. Qualitative approach have been used to collect and analyze qualitative data's regarding to respondents perception. Quantitative approach have been adopted to analyze numerical data's such as tax amount, spatial coverage of land registration in the city, plot areas, tax rates and etc.

Both explanatory and descriptive research techniques had been used. Descriptive research have been used to describe the issue related to existing land registration system in the city. Explanatory research type have been used to examine the relationship between land registration system and Municipal revenues

3.2. Methods of Model Developemnt

Multiple regressions had been used to determine the most significant/influncial/ content of real property registration explanatory variables affecting property based Municipal taxation in Ethiopia.

The general model for this study will be:

$$MR = \beta_0 + \beta_1 CPR + \beta_2 CRPR + \beta_3 PVI + \epsilon$$

Where:

- MR = Municipal Revenue
- CPR = correct property records
- CRPR = complete real property records
- PVI = Property Value Information

Table 1. Description of Main Variables.

Variable Code	Name of Variables	Type of Variable	Definition of Variable	Type of Data
MR	Municipal Revenue	Dependent	Property based Revenues	Continuous
CPR	correct property records	Independent	Availability of Property Owner address, Parcel identification number, Area of the Parcel	Categorical
CRPR	complete real property records	Independent	Availability of land grade, types of land tenure, types of land use	Categorical
PVI	Property Value Information	Independent	Availability of updated property value information	Categorical/dummy/

3.3. Sources of Data

To obtain significant information for this study both primary and secondary data were collected. Primary data was basically raw data from the field and was used to examine the respondents' perception on the nature, adequacy and types of

information in the property register as well as the role it plays in the property taxes. It was obtained by the use of questionnaires, interviews and field observations. The secondary data was obtained from internet search engines, books, journals, and reports. Besides it used to collect organized cooked numeric and nonnumeric data related to

real property registration and property taxation.

4. Finding and Discussion

4.1. The Relationship and Roles of Real Property Registration for Municipal Property Taxation

To make property taxation efficient the existence of a real property registration system is essential. However, in the area under this study the level of the relationship between property registration system and property taxation was unknown. Therefore, in this subtopic, the relationship between the two concepts was examined by using SPSS version 20 and analyzed by using different inferential statistics data.

4.1.1. Correlation Coefficient Analysis

The correlations compute the degree to which two variables are interrelated. It shows a measure of the way and strengths of a relationship between variables. It is measured by the coefficient of correlation (r). The value of r ranges from -1 to +1 with both extremes indicating a perfect correlation. A correlation close to 0 indicates that both variables are not related. Therefore, the next table 2 was

shown us the correlation coefficient of municipal revenue enhancement (PTI) which is a dependent variable of this study with complete real property records (CRPR) (in terms of spatial coverage and its attribute or contents), correct property records (CPR) and availability of updated property information (AUPI) as factors (independent variables).

The result shows that the correlation coefficient between complete real property records and property tax improvement is .776 and the value is close to 1 which is highly associated with each other at a one percent level of significance since the p-value was less than 0.01. This indicated that there is a direct strong relationship between completeness of property records in cadastral coverage and in content or format registration and property-based revenue. Similarly, the correlation coefficient between correct property records and property tax improvements is .753 which is highly associated with each other at a one percent level of significance (P< 0.01) or significant level of variable p<0.05. In addition, the correlation coefficient between the availability of updated property information (AUPI) and property tax improvement is .713 which is indicating the existence of high association between them at a one percent level of significance (P< 0.01).

Table 2. Correlation Coefficient Analysis of Variables.

		PTI	CRPR	CPR	AUPI
PTI	Pearson Correlation	1	.776**	.753**	.713**
	Sig. (2-tailed)		.000	.000	.000
	N	161	161	161	161
CRPR	Pearson Correlation	.776**	1	.607**	.577**
	Sig. (2-tailed)	.000		.000	.000
	N	161	161	161	161
CPR	Pearson Correlation	.753**	.607**	1	.764**
	Sig. (2-tailed)	.000	.000		.000
	N	161	161	161	161
AUPI	Pearson Correlation	.713**	.577**	.764**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	161	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Field Survey output, by using SPSS 20.0 (2020).

4.1.2. Regression Analysis

Regression analysis is the statistical technique that identifies the relationship between two or more quantitative variables: a dependent variable, whose value is to be predicted, and an independent or explanatory variable (or variables), about which knowledge is available. The technique is used to find the equation that represents the relationship between the variables. Multiple regressions provide an equation that predicts one variable from two or more independent variables. Therefore, in this study a multiple linear regression analysis was employed by using property tax improvement as the dependent variable and complete real property record correct property records and availability of updated property information as independent variables. Thus, the operational panel regression model used to find the significant factors of property tax revenue was;

$$PTI = \beta\alpha + \beta_1CRPR + \beta_2CPR + \beta_3AUPI$$

Where:

- a) PTI (Property Tax improvement) is the dependent variable
- b) $\beta\alpha$ is constant variables
- c) β_1CRPR (Complete Real Property Record) is an independent variable
- d) β_2CPR (Correct Property Record) is an independent variable
- e) β_3AUPI (Availability of Updated Property value Information) is an independent variable.

The multiple regressions in table 3 below revealed that, the correlation between the observed value of property tax revenue and the optimal linear combination of the independent variables (complete property records, correct property value measurement and availability of updated property information) is 0.739, as indicated by multiple R square. This data realized that 73.9% of the variation in

property tax revenue can be explained by the independent variables. While, the rest 26.1% of variations could be explained by other factors such as, lack of clear tax rate and

valuation policies, absence of professional valuers, ineffective billing and collection practices, weak enforcement practice and etc. that are not included in this model.

Table 3. Linear Regression Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863a	.744	.739	.420
a. Predictors: (Constant), AUPI, CRPR, CPR				
b. Dependent Variable: PTI				

Source: Field Survey, 2020.

In addition to this, as indicated in table 4 below the unstandardized coefficients β column, gives us the coefficients of the independent variables in the regression equation including all the predictor variables. The standardized beta coefficient column shows the contribution that an individual variable makes to the model. The beta weight is the average amount of the dependent variable increases when independent variable increases by one standard deviation (all other independent variables are held constant).

Table 4. Multiple Linear Regression Analysis.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.057	.074		.769	.000
CRPR	.435	.048	.468	8.994	.000
CPR	.269	.057	.313	4.750	.000
AUPI	.167	.052	.203	3.173	.000

a. Dependent Variable: PTI

Source: Field Survey output, by using SPSS 20.0 (2020).

Therefore, by holding other factors constant as the content/attribute and coverage of property records complete, the amount of property tax revenues amount will increase by .468. This shows that the towns having complete real property registration in spatial coverage and essential attributes have a higher probability of achieving good performance. Similarly, holding other factors constant for a unit improvement on the correctness of property records, the amount of property tax revenue will be increased by 0.313. Finally, by holding other factors constant, for a unit improve in the availability of updated real property information, the amount of property tax revenues increases by 0.203.

4.1.3. Multi collinearity Test

Table 5. Multi collinearity Test.

Variables	Collinearity Statistics	
	Tolerance	VIF
CRPR	.601	1.664
CPR	.375	2.664
AUPI	.397	2.520

Source: Field Survey output, by using SP+SS 20.0 (2020).

Multi collinearity test is a situation in which two or more predictor variables used in the regression model are highly related to each other. Therefore, testing multi collinearity is

identifying the correlation between the independent variables [45]. According to Nachstcham [46], the multi collinearity problem is expected when the variance inflation factor (VIF) values were greater than 10. Moreover, according to Brooks (2014), suggestion the existence of a correlation between independent variables of about 0.8 and above indicates a problem of multi collinearity.

From the result, the value of VIF showed that there is no multi collinearity problem in the model since there is no VIF value greater than 10. Similarly, the tolerance value column is showed that no independent variable correlated with others by more than 0.601. Therefore, since the highest correlation between the independent variables is 0.601 and it's less than 0.8, in can be concluded that there is no problem of multi collinearity in this study.

4.2. The Impact of Real Property Registration Attributes (Contents) on Property Taxation

Complete and up to date real property registration system can do much improves property tax revenue. There is a direct relationship between the real property registration system and the property taxation system. The coefficient correlation analysis result indicated that there is a positive strong relationship between factors (complete real property records, correct property records, availability of updated property information) and property tax revenue. With the improvements in factor variables, there is an increment in property tax revenue. With support to this, the regression analysis computed in this study shows that the contribution of each predicts variables to improving the amount of property tax revenue.

Accordingly, by holding other explanatory variables remains constant completeness of real property records in terms of spatial coverage and content has an optimistic impact on property tax revenue. Therefore an improvement in completeness of property records would lead to an increase in property tax revenue by a factor of .468. This result is coinciding with the finding of Bird [33], which explained the existence of property information is one of the prerequisites for property taxation to be successful. Ideally, complete property records were enabled tax authorities to identify all property owners or taxable properties without leaving behind any single property. Property registration should provide complete information on property to be used in calculating the value of the property subject to tax. Similarly as indicated by Williamson et al., [26], as the main objective of the tax authorities is to collect property taxes and fees from all

taxpayers, information of real property was must be complete in content with full coverage of the area of interest.

Moreover, the multiple linear regressions results indicate that when other explanatory variables remain constant the correctness of real property registration has a significant impact on property tax revenue. This implies that an improvement in the correctness of real property registration would lead to an increase in property tax revenue by a factor of .313. The finding is identical with the finding of Bahl and Youngman [4] who found out that correctness in real property records had greatly increased the amount of revenue collected from property tax. Additionally, Walters [25], revealed that correct property information affects property tax revenue positively.

Likewise, the results of regression analysis also show that other explanatory variables remain constant availability of updated data has a significant positive impact on revenue collected from property tax, therefore an improvement in the availability of updated property information would lead to an increase in revenue from property tax by .203. The result was comparable with the finding of Ali, [2] which indicated that availability of essential timely updated information has an invaluable role in property tax collection activities.

4.3. The Role of Real Property Registration for Enhancing the Number of Taxable Property & Tax Amount

Registering property in a systematic way and making property information available to the property tax collection process have a helpful impact on the amount of collected property-based revenue. Whereas, in situations of the area under this study a significant number of taxable properties were not included in the tax roll due to the absence of an efficient and complete real property registration system.

According to the result of key informant respondents' response introducing real property registration system would maximize the number of taxable properties to the tax system and the amount of revenue collected from property tax. In line with this, as shown in table 6 below the majority of respondents 87 (54.04%) and 61 (37.88%) were strongly and agree on the contribution of introducing real property registration system to enhancing the number taxable properties and amount property-based revenue. Whereas, 13 (8.08%) were revealed that they disagreed on the contribution of introducing a real property registration system for taxation activities.

Table 6. Contribution of Property Registration on Enhancement of Taxable Properties.

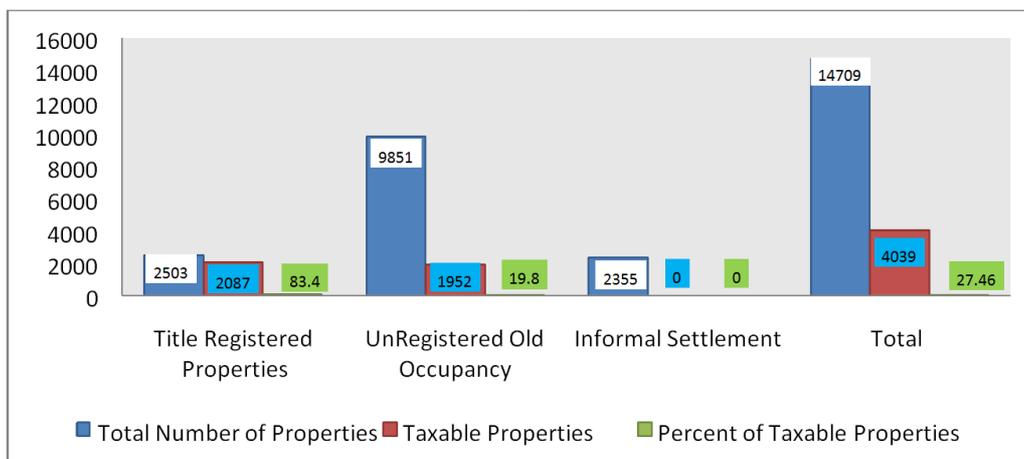
	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Agree	87	54.04	54.04	54.04
Agree	61	37.88	37.88	91.92
Disagree	13	8.08	8.08	100
Total	161	100.0	100.0	

Source: Field Survey, 2020.

In addition to the respondent's perception, the *secondary data obtained* from the town revenue authority indicated that for the fiscal year 2020, out of 2503 total properties that have title certification of land, 2087 (83.4%) of property owners were subject to tax with paying less than what they should pay and only 417 (16.6%) did not pay property tax.

Whereas out of 12,206 (both informal and unregistered old occupancy) that not have title registration, only 1952

(15.99%) property owners were paid property tax revenue and 10,254 (84.01%) properties were not paid property tax revenue in 2020 fiscal year. Therefore, as showed in figure 1 below the title register property owners were more obliged to pay property tax rather than the unregistered one and as more properties are registered the number of taxable properties and property tax revenue was maximized.



Source: Dire Dawa city Municipal Administration (2020).

Figure 1. Comparison of Existing Properties with Taxable Properties.

In line with this, the interview conducted with officials of Municipal administration and revenue authority indicates that, due to the inefficiency and absence of basic information, the valuation of real property registration and identifying taxable properties were difficult in the study area. Furthermore, the key informants confirmed that it is difficult to collect all revenue from all real properties unless it is registered into the computer database as well as updated the necessary information timely.

In Addition to above, understanding the contribution of introducing real property registration system for taxation from *countries Experiences* having a well functioned real property registration system showed that establishing a real property registration system that supports property taxation has a high positive impact on the amount of collected property based revenue. The use of a property registration system in the property tax collection process facilitates the process by reducing the number of steps involved in the property tax collection activities, reducing the cost and time spent on property taxation. With regard to this Zevenbergen [31], described that the establishment of a property registration system is made easy the process of property tax administration. Similarly, Tulandhar [22], indicates that the availability of a comprehensive system of property registration was reducing the cost and time spent in property taxation activities.

Whereas, in the study area with the absence an efficient real property registration system the process involved in property taxation activities is too long. In line with this the cost and time spent in property taxation was too high. The interview carried out with key informants from revenue authority confirmed that currently, it's difficult to perform property tax collection activities efficiently due to the of absence essential information's on taxable properties as well as on property owners. With identical to these results before the land was systematically registered in Rwanda, discovering the taxable properties could take 15 up to 30 days, whilst today it can takes a few minutes, just the time to query property information in the system [19].

Similarly, an inefficient real property registration system also affects the amount of revenue collected from property tax. To enhancing property tax revenues identifying properties and property owners was essential for knowing each real property which is taxable or not. By contrast, without having an efficient real property registration system it is impossible to collect a significant amount of revenue from property tax. In line with this in the study area out of 14709 identified properties, only 4039 (27.46%) properties were subject to property tax in fiscal year 2019 with paying less than what should they pay. Whereas, a significant number of properties 10,670 (82.54%) were not included in the property taxation system. This data indicated that there is a high potential for revenue with extremely low performance. Without any change in tax rate and other efforts if all not taxed properties would be included in the tax system the number of taxable properties would maximize by 264.17% in

each fiscal year.

This finding is alike with the study carried out in Rwanda Huye District that confirmed the completeness in a real property registration system has an essential role in maximizing property based revenue. According to Mukarage [19], after the establishment of the real property registration system in Rwanda, the numbers of taxable properties in the Huye district increased with 299 percent and the total property based revenue collected in the fiscal year 2012/2013 was raised by 172 percent. In addition to this, Walters [25] shows that the same phenomenon has occurred in Somaliland, where the property survey program initiated by the municipality of Hargeisa to produce fiscal cadaster had resulted into an increase of over 370 percent for taxable properties and 248 percent of revenue collected.

Moreover, the result of this study notifies that introducing a real property registration system for taxation purposes would improve the present unfair taxation system. According to Carvalho [7] fairness in tax payment distribution has both horizontal and vertical components. Horizontal fairness considers equal treatment of taxpayers who have equal capability to pay taxes. Vertical fairness concept holds that the tax burden should rise with the increase in income. Tax systems such as progressive and proportional are developed in order to cope with the vertical equity of ability to pay principle. To implement a tax system with vertical equity, decision as to who should pay tax at higher rate has to be taken. Currently, the inefficiency of the real property registration system in the study area was affecting the fairness of property taxation as it was supported by 109 (67.7%) respondents (Table 6.). With support to this Vozarikova [24], argue that the existence of basic information of real property registration system minimizes unfair taxation system by including all properties and individuals who hold property to the property taxation system.

The other contribution of introducing a real property registration system for property taxation is associated with maximizing the number of voluntary taxpayers. With regard to this study find out that lack of awareness on tax obligation and due to unregistering of individual's properties currently, most the respondents were not voluntarily paid property taxation. With similar to this result Loo et al [18], indicated that registering a real property has an essential role to encourage the attitudes of property owners towards paying property taxes voluntarily.

5. Conclusion

Generally, this article examines the contribution and the role of introducing a real property registration system for property taxation. The overall findings allow us, in a number of ways, introducing real property registration system is essential to improvements in the property taxation system.

There is a strong direct relationship between real property registration system and property taxation. When real property

registration is complete, correct and updated the amount of revenue collected from property tax is also maximized. Having complete property information in terms of its cadastral coverage and the existence of essential information in the registration system has a significant role to collect property tax revenue efficiently. Besides the correctness of property value measurements and availability of updated information is maximize the amount of revenue collected from property tax. By contrast, the absence of efficient real property registration affects the effectiveness and efficiency of property taxation (Municipal revenue collection).

Introducing a real property registration system that supports property taxation has a constructive force on property taxation improvements. Availability and use of real property register in property tax administration allowed revenue authorities to reduce steps involved in the process, costs and time spent for property tax collection process. Furthermore, the establishment of the real property registration system is important to encourage the entrance of property owners into the property taxation system and as a result, maximize the number of taxable properties and amount of revenues from property taxes. Similarly introducing real property registration has a high contribution to make the property taxation system fair among all residents in the town. In addition to this, the establishment and effective implementation of the real property registration system also maximizes the number of voluntary taxpayers which is important in the taxation system.

6. Recommendations

For policy makers, executive bodies at national and regional level especially, for Ethiopian Real Property Registration Agency, Ministry of Revenue, Dire city Land Development and Management Bureau, Dire Dawa Municipal administration, Dire Dawa city Revenue Authority, the following are hereby suggested:

- a) The registration should move away from being just a land registration to a real property registration. The contents should include property owner's information, location of the property, land grade of the property, area of the property, property value information, real property information and charge or tax information.
- b) A coordinated and comprehensive national real property policy is required and is an urgent matter to be considered taking in to account other related strategies such as real property management, real property valuation, and real property taxation strategy.
- c) The government should realize cost effective participatory systematic real property registration strategy and computerized property information system to put all real properties in registration system repository.

To improve the capacity of the city urban land development and management agency, municipal city administration office and revenue authority the following are recommended for the city administration:-

- a) The institutions should be equipped with the necessary logistics like computers, modern surveying materials and other technological equipment which can enhance the operations of land administration and property tax collection.
- b) Continues capacity building programs must be organized for the staff of the various institutions involved in the property registries and collection of the taxes. This can be in the form of in-service or of-service training programs with collaborating of Dire Dawa University and Dire Dawa Ethio-Italian Poly Technique College, which will acquaint the staff with innovative and modern ways of property registry and also be able to detect tax evaders.

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