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**Land value taxation and land speculation; the  
case of São Paulo, Brazil**

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## Summary

Land has become an increasingly important and scarce resource in fast urbanizing cities. Urbanization pressure triggered some landowners to speculate with their land, withholding it from the market or evaluating their land's market value at its future value, hence vesting it presently with an assumed future development potential. Land speculation is the main cause of leapfrog development, leading to urban sprawl, loss of resources, as well as higher real estate prices. Recognizing its adverse effects, many public authorities have designed instruments to discourage speculation with land. One of such instruments is land value taxation. However, not everyone agrees with the link between land value taxation and land speculation and the impact that the former can have on the latter.

Hence, the main research objective of this study is to investigate how land value taxation, focusing on IPTU progressive in time in São Paulo, affects land speculation. This research objective was approached by investigating understand how land speculation is manifested in a megacity such as São Paulo and evaluating how efficient was the implementation of IPTU progressive in time in Sao Paulo. The research strategy adopted for this study is that of a mixed method, with Desk Research being the primary source of data, backed up by interviews and in-site observations.

The main findings indicate that land speculation is manifested in different land sizes depending on the location: it can be reflected with smaller scale land holdings given a more advanced development stage of the city. Similarly, large landholdings are present in the abandoned industrial sites or land in the periphery which is yet undeveloped or surrounded by informal/irregular developments. Moreover, the spatial manifestation of land speculation in Sao Paulo stems from urbanization and land market dynamics during the last century in the city. This phenomenon is also present in areas where special land regulation policies such as ZEIS or urban transformation projects have been undertaken. In some instances, land speculation is accompanied with provisional uses, such as parking, or storage space serving another bordering land use. The pattern of landownership indicates of a situation similar to that of Market Power, where 66% of surface area the notified Vacant Land is owned by Real Estate Companies or owners of such companies.

Moreover, IPTU progressive in time in Sao Paulo is efficient in terms of encompassing a wide tax base. The tax rate is a progressive one, which doubles for every year that the notified owner fails to fulfil his/her obligations. This tax rate is significant compared to other countries where Vacant Land tax is applied. The efficiency of application of IPTU progressive in time been reduced due to this tax's governance and administration. The biggest challenges in terms this tax's implementation are faced when it comes to the Consistency of enforcement.

Adopting a “scale of operation” approach can be an effective way to identify speculative behaviour, however it should be accompanied with a strategic workplan. Special attention should be devoted to tax governance and administration. Land value tax, when used as an instrument to discourage land speculation, succeeds on cumulative effects, therefore consistency in its implementation and time is required.

## Keywords

Land speculation, Property tax, Land value taxation, IPTU progressive in time, Vacant land

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## Abbreviations

IHS	Institute for Housing and Urban Development
IPTU	Urban Property and Land Tax (Imposto sobre a Propriedade Predial e Territorial Urbana)
PEUC	Compulsory Subdivision, Construction and Utilization (Parcelamento, Edificação e Utilização Compulsórios)
ZEIS	Special Zones of Social Interest (Zona Especial de Interesse Social)
UO	Urban Operation (Operación Urbana)
HMP	Housing of Popular Market (Habitações de Mercado Popular)
HIS	Housing of Social Interest (Habitações de Interesse Social)
CBD	Central Business District
PGV	Generic Plant of Values (Planta Genérica de Valores)

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# Chapter 1: Introduction

## 1.1 Background

The turn of the century has been marked by ever increasing rates of urbanization. In 2017 54% of the world's population lives in urban areas, while this percentage goes up to 82% in North America and 84% in Latin America (Inostroza, Baur, et al., 2013, p.1). Meanwhile, in many cases urbanization patterns fail to reflect the provisions of local territorial plans or policies. While fast pace urbanization has caused the multiplication of the surface area of many cities, this growth did not happen uniformly in terms of development patterns in urban centers, but rather manifesting a leap-frog development and resulting in urban sprawl. Urban sprawl maybe the result of many factors, but one of the most prominent is land speculation linked to expectations of land price appreciation (Bhata, 2010). Rapid urban expansion triggered landowners, especially in the city fringe where this growth was expected to take place, to evaluate their land's market value at its future value, hence vesting it presently with an assumed future development potential. Expectations of land value increase may cause some landowners to withhold land from the market, indicating the critical role that land values play in the allocation of land, and as a result in development patterns (Ottensmann, 1977, p.389). As a result, while serviced land remains undeveloped, developers reach cheaper sites in more remote areas. Once these areas are developed, political pressure created by the occupants encourages public authorities to extend the infrastructure, making the provision of services and infrastructure much more expensive than what it would have been in a compact city development pattern (Rybeck, 2004). This rapid and unconsolidated urban growth generally is characterized by segregation of land uses and low development densities, causing longer commuting distances, discouraging of walking and cycling and inefficient public transport; all of which generate higher dependence on petrochemical suppliers and higher (Rybeck, 2004). Not of less importance is the loss of agricultural and forest land as a result of urban sprawl, contributing furthermore to the negative environmental impacts discussed so far.

Once infrastructure reaches remote areas, prices in land in these formerly inexpensive sites, increase as well. As Rybeck (2004) argues, this together with the artificial scarcity of well-located land created by land speculation, results in overall higher land rents and land prices. Increase in land prices causes a domino effect on housing prices, making housing, as well as on other types of development such as office space, retail, and other uses less affordable. He further argues that once land prices rise, certain businesses might become unable to afford their spaces in the city and might consequently fail, leading to unemployment or displacement of families. At some point such a situation can have fatal economic consequences by precipitating to an economic recession or deepening an ongoing one (Rybeck, 2004).

Seeking to mitigate such effects and promote more sustainable compact developments, many local governments have designed several instruments that would tackle the inefficiency of land development and specifically land speculation. In such cases, introducing a land value property tax<sup>1</sup> or a land and improvements value-based property tax<sup>2</sup>, has aimed, among other things, to

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<sup>1</sup>Also referred to as Land Value Taxation. In this study, the terms Land Value property tax and Land Value Taxation will be used interchangeably, referring to the same thing, hence a property tax based on the Value of Land.

<sup>2</sup> Also referred to as graded property tax (Oates and Schwab, 1997), two-rate property tax or split-rate property tax.

tackle land speculation and serve as an instrument to push forward several land related urban policies. Land value taxation was initially introduced in Great Britain, Australia, New Zealand and South Africa at the turn of the 20th century, under the influence of Henry George (Wuensch, Kelly, et al., 2000), according to whom "If land were taxed to anything near its rental value, no one could afford to hold land that he was not using, and, consequently, land not in use would be thrown open to those who would use it" (George, 1935, p.413). Even though today more than 30 countries have implemented land value taxation (Dye and England, 2010), it cannot be considered as a widespread form of property taxation<sup>3</sup>, and not much is known in practice about its role in increasing the efficiency of land markets.

While proponents of Henry George support the idea that land value taxation will discourage land speculation, some modern economic theorists conclude that such tax could be neutral in terms of its impact on the timing of development of land (Dye and England, 2010). While studying the city of Pittsburgh and the effect of the reformed property tax, Oates and Schwab (1997) suggest that it has played a significant role in the economic recovery of the city, in terms of revenue generation, however when it comes to its impact regarding hastening land development and reducing land speculation, they claim that a correlation could not be identified. As Dye and England (2010) explain, the divergences between Henry George and his proponents' thinking and the current views on land value taxation, are based on many distinctions between the nature of land speculation and the nature of land value tax involved. Both sides of this academic debate refer to different models of land speculation and land value taxation (Dye and England, 2010). Hence further investigation in the current context of possible links between land value taxation and land speculation would contribute to this ongoing discourse.

On one hand, while development pressures can be translated into opportunities of benefiting from speculative prices in a market of scarce urban land for some, these pressures also present many challenges for local authorities, who struggle to manage the consequences of the unsustainable development patterns it produces. On the other hand, the theoretical debate on whether land value taxation can discourage land speculation is also reflected in governance, with more than 30 countries that have adapted a land value taxation (Dye and England, 2010) and several others that have not. On the experiences of the countries that have adapted a land value tax, the question remains how cities in these countries in emerging economies, such as BRICS<sup>4</sup> countries, are using land value taxation to cope with their urban development challenges, and more specifically with land speculation.

In this context, this study seeks to contribute to the academic discourse, followed by the political and governance one, by exploring the relation between land value taxation and land speculation. This relation will be investigated focusing on the case of São Paulo, Brazil. Brazil is a three-tier federation, with a so-called symmetrical federalism (Souza, 2004, p.3). The Constitution of 1988 (Constitution of the Federal Republic of Brazil, 1988) has expanded the level of autonomy for local governments, making Brazil one of the most decentralized countries in the developing world (Salm, 2017). According to Salm (2017), property tax has been a local tax since 1967, and the constitution reconfirmed it, by allocating the tax on urban

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<sup>3</sup> There are a few cases of land-value taxation in practice; where applied, land value taxation usually involved a 'graded' property tax system, which is a property tax that charges land value at a higher rate than the improvements (buildings) on the land (Oates and Schwab, 1997). For example, the reformed property tax in Pittsburgh, mentioned below.

<sup>4</sup> Brazil, Russia, India, China and South Africa

buildings and land property, known as *Imposto sobre a Propriedade Predial e Territorial Urbana* (IPTU) to the municipalities. IPTU is a tax levied locally on immovable property, both land and improvements, located within the urban borders of each municipality (Afonso, Araujo, et al., 2012). Hence, the base of this tax is the fair market value of the property, calculated as a sum of the value of land and the value of the improvements (buildings) on the land. The fair market value of property is calculated taking into consideration market conditions but also attributes of the property. After establishing this value, the IPTU value is calculated by applying the tax rate to this assessed value (Afonso, Araujo, et al., 2012).

Besides its role as a revenue generator, IPTU grants municipalities also the possibility of promoting certain territorial policies. Article 156 of the 1988 Constitution, states that this tax may have a progressive rate according to the value of the property, as well as according to location and use of the property (Salm, 2017). When it comes to utilization, IPTU<sup>5</sup> can be applied with a progressive rate in time, to properties that do not fulfill their social function, as shall be explored in detail later. Thus, when used properly, IPTU progressive in time can be a powerful instrument to hasten land development in certain areas of the city and discourage land speculation. To what extent it has been utilized to serve this purpose is going to be further explored throughout this study.

## 1.2 Problem statement

São Paulo is the major economic hub and the most populated city in Brazil, accounting for 5.9% of the country's population and 10.4% of its GDP (Salm, 2017). It is also one of the four megacities in developing countries that are currently in the top 30 GDP global ranking, together with Mexico City, Buenos Aires and Rio de Janeiro (Un-habitat, 2010). According to UN-HABITAT's (2010) publication "São Paulo a tale of two cities" São Paulo, initially established as a Jesuit village in 1554, became a city in 1771, benefiting from the gold mining activities in the neighbouring state, Minas Gerais, and the sugar plantations in the region. In 1888, with the abolishment of slavery, São Paulo became the target city for a new wave of migrants, increasing the diversity and competitiveness of the workforce (Un-habitat, 2010, p.13). Hence from the end of the 19<sup>th</sup> century until around 1940 the urbanization of São Paulo was characterized by heterogeneity and concentration, as the population grew 13.96 % per year and the urban expansion did not follow with the same rapid pace (Caldeira, 2000, p.215). With a growing economy based on coffee production and new industrial development, São Paulo became the richest city in Brazil by the beginning of the 20<sup>th</sup> century (Un-habitat, 2010, p.13). The financial global crisis of the late 1920's, introduced a new wave of industrialization in Brazil, with São Paulo becoming the country's centre for heavy manufacturing in the early 1930's, followed by automobile industry in 1950's. This economic shift was reflected also in the urbanization model followed in the city, transforming from a calm city hosting financial services related to the export of coffee to a chaotic urban space expanding with new industries and residential areas for the increasing migration rates year after year (Caldeira, 2000, 215). Over the last 100 years, the population of São Paulo has multiplied several folds, increasing from 250,000 in 1900 to almost 11 million by 2009 (Un-habitat, 2010).

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<sup>5</sup> Throughout this study, the term progressive IPTU or IPTU shall both refer to IPTU that is progressive in time, unless otherwise stated.

This growth has brought about opportunities as well as challenges for the residents of the city. Currently, São Paulo has the largest slum population in Latin America, accounting for 1599 official *favelas*<sup>6</sup> housing with around 1.6 million inhabitants, as well as 1.7 million other inhabitants living in illegal settlements in the periphery and 38 thousand inhabitants living *cortiços*<sup>7</sup> in the city center (Salm, 2017). As a result, this often been considered as a manifestation of inequality, social separation and exclusion with its apparent consequences in terms of spatial justice and access to resources such as land and housing. According to experts surveyed by UN Habitat, in São Paulo, talking about rights in general is talking about the right to the city; which one of them defines as "the equal enjoyment of cities within the principles of sustainability, democracy and social justice" (Un-habitat, 2010).

Besides high migratory rates towards urbanizing centers, informality in Brazil is connected to its land markets. The high paced urbanization has not been accompanied with the necessary infrastructure provision. This has had a major impact in land values, as serviced land is more desirable with the increasing need for development pressured by migration. Scarcity of serviced land has resulted in higher prices of such land, which in turn have been reflected in the housing market. Hence, given the current situation of land markets in Brazil, affordable housing supply is scarce (Karruna, 2013), and this is even more relevant for bigger urban areas such as São Paulo. In other words, scarcity of serviced land in the city and competition for housing from the demand side, has made the real estate market unaffordable for a large portion of the population. A similar pattern of inflated prices of real estate can be observed also outside of the city center. Internal mobility of higher income groups from the city center, to safer and exclusive residences outside of the city center has fueled real estate speculation<sup>8</sup> (Un-habitat, 2010).

While land became increasingly important in the fast urbanizing setting of São Paulo, landowners and developers were able to appropriate all increased property values resulting from changes in urban regulations and zoning, which made this market even more inaccessible for the urban poor. On the other hand, social movements such as MST (*Movimento dos SemTeto* in urban areas and *Movimento dos Trabalhadores Rurais Sem Terra* in rural areas, advocated towards the need to base the ownership of land not just on a proof of land acquisition but also based on its use and occupation (Karruna, 2013). These growing spatial inequalities and the social pressure pushing policy makers towards more inclusive policies were the main reason why the Federal Constitution in 1988 had a specific focus on urban land and policies, introducing the concept of the Social Function of Property. Article 182 of the constitution specifically acknowledges that urban development policy is intended to enable the social functions of cities and to guarantee the well-being of all their inhabitants. To safeguard the social function of property, this article introduces three instruments that can be included in Masterplans: compulsory subdivision, construction and utilization (PEUC), building and urban property tax rates that increase over time (IPTU progressive in time) and expropriation with payment in public bonds. Based on similar principles, *Estatuto da Cidade* (Law nr. 10 257 of 10 July 2001 City Statute, 2001) was elaborated soon after the adoption of the 1988 Constitution, but it was only approved as a federal law in 2001. This time gap of 13 years for

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<sup>6</sup> Illegal settlements of invasions of land by low income people who self-construct homes of generally non-durable materials, to be substituted with more durable ones in the future (UN Habitat, 2010).

<sup>7</sup> Sub-standard rented rooms in larger residential blocks or houses, highly congested with shared facilities usually located in downtown old Sao Paulo (UN Habitat, 2010).

<sup>8</sup> Here, real estate speculation refers to land speculation as well as housing speculation.

the approval of the City Statute, which would further enable Country Governments and Municipalities to implement the instruments introduced in the constitution, is a testimony of the social and political friction underlying such radical changes in the way that property is regarded. The City Statute focuses particularly on the social function of the property and on promoting the use of urban property for the common good (Un-habitat, 2010, p.88). In this sense, it seeks to make urban land more accessible and affordable for all, which can be achieved through discouraging land speculation, among other things.

Meanwhile, the rapid urbanization of São Paulo has been accompanied with land being considered as an investment asset, and hence with land speculation. Therefore, the problem that this study seeks to tackle, is land speculation in a developing megacity such as São Paulo. The effects of land speculation in São Paulo, have not only had their impact on housing unaffordability, but also in the pattern of urban development, resulting in many cases in urban sprawl. Such urban sprawl has caused significant losses of prime farmland as new developments leapfrog into arable land. Also, urban sprawl has contributed to the degradation of many environmental resources in many cases, such as the case of São Paulo and its water basins (Un-habitat, 2010). Promoting the social function of property by discouraging real estate speculation has been recently at the focus of the land policies of the Municipality of São Paulo as well. In 2014, this municipality approved the Masterplan of the city (Law nr. 16 050 of 31 July 2014 Urban Development Policy and Masterplan Strategy of the Municipality of São Paulo, 2014), which foresees the implementation of the three instruments introduced in the Federal Constitution of 1988, namely PEUC, IPTU progressive in time and expropriation.

### **1.3 Research objectives**

Land speculation is one of the many challenges that megacities, such as São Paulo, have to face. Having recognized its effects on increased land prices which translates into unaffordable housing, urban sprawl, increased costs for infrastructure and services provision, environmental deterioration and the like, the municipality of São Paulo is utilizing IPTU progressive in time as an instrument to discourage land speculation. Hence, the main research objective of this study is:

*To investigate how land value taxation, focusing on IPTU progressive in time in São Paulo, affects land speculation.*

In order to achieve this research objective, the research will seek to fulfill also the following specific objectives:

- To understand how land speculation is manifested in a megacity such as São Paulo.
- To evaluate how efficient was the implementation of IPTU progressive in time in São Paulo

### **1.4 Provisional research question(s)**

Seeking to fulfill the up-mentioned main research objective and specific objectives, the main research question posed for this study is:

*How does land value taxation, and specifically IPTU progressive in time in São Paulo, affect land speculation?*

To answer this main research question, the study will elaborate arguments based on the available literature review and information gathered during the field research, to address also the following sub-questions:

- How is land speculation manifested in a megacity such as São Paulo?
- How efficient has been the implementation of IPTU progressive in time in São Paulo during 2014-2018?

## **1.5 Significance of the study**

Although the instrument of IPTU progressive over time has been introduced in the Federal Constitution of Brazil in 1988, and later regulated by the City Statute in 2001, its application at a local level has been limited. According to Denaldi, Brajato et al(2017), a survey conducted in January 2014 shows that amongst all the Brazilian municipalities with a population of over 100 thousand inhabitants, only 25 of them regulated the implementation of IPTU progressive over time and 8 of the latter started its application. The municipality of São Paulo started its implementation in 2014 and is now in its fourth year of its application. Hence, this study seeks to contribute with findings from monitoring these first years of the implementation of IPTU progressive over time, to the academic and political discourse in Brazil on how the instruments of promoting the social function of property, and specifically IPTU progressive in time can contribute to its purpose and can discourage land speculation. By investigating the different facets of land speculation and the experience of the first years of implementing these instruments in São Paulo, this study seeks to explore the main challenges faced by local authorities while working with these instruments, and therefore furnish the public debate on the improvement of this policy. Given the link between land markets and affordable housing, this study supports local policy making with testing whether land value taxation can discourage land speculation, making serviced land more affordable and in turn contributing to more affordable housing. Therefore, this study seeks to contribute in promoting social justice and equality, in terms of sharing of the benefits as well as costs that come with rapid urbanization, and promoting equitable and socially sustainable cities

On a more general context, this study aims at making a contribution to the body of academic research exploring the link between land value taxation and urban land speculation. Considering the wide range of opposing views on the subject in the academic literature, varying from studies that conclude that land value taxation can discourage land speculation to studies that assert that such tax has no effect on land speculation, this research seeks to provide evidence supporting either one of these claims, investigating it in the city of São Paulo.

## **1.6 Scope and limitations**

Content wise, this research seeks to investigate property taxation as a policy making tool, specifically its impact on land speculation, focusing on land value property tax. While taxation on improvements on land, hence buildings, might be part of the IPTU progressive over time, they are not on the focus of this study. Moreover, land value taxation will be studied as far as its role in urban policy making is concerned, i.e. its impact on land speculation. Other areas of urban policy linked to land value taxation will be overlooked, e.g. the impacts that this tax might have on development patterns, density, land use and the like. Its role as a revenue generating instrument will not be the focus of this study either.

Geographically, the study will take place in the Municipality of São Paulo, which is one of the 39 municipalities in the Metropolitan Area of São Paulo, Brazil. When need arises, the study will refer to other localities for comparison purposes, however their assessment will extend only to the necessary point to draw the relevant comparative conclusions.

Moreover, this study will focus solely on “Vacant Land”, while “Under-utilized land” will also be addressed but is not on the focus of this study. Acknowledging the fact that “Under-utilized Land” might be subject of land speculation, its role in the land market and spatial manifestation is different from vacant land. Therefore, specific variables and indicators need to be designed to measure and assess “under-utilized land”. Due to limited time and resources, this study will not encompass these cases, although considerations will be given, together with recommendations for further research.



**Figure 1** Metropolitan Area of São Paulo, where the Municipality of São Paulo is located (Source: Viana, et al, 2009, retrieved from: <http://www.scielo.br/pdf/rbp/v31n4/a16v31n4.pdf>)

One of the main limitations of this study is the brief timespan (2014-2018) during which PEUC and IPTU progressive has been applied in the Municipality of São Paulo. However, so far São Paulo is one of the most representative examples of the application of these instruments in Brazil, for reasons explained further in Chapter 3, which justify the choice of the subject of this study. Limitations arising from the brief timespan of the policy implementation have been analysed and dealt with further on in Chapter 3.



## Chapter 2: Literature Review / Theory

This chapter starts with a quest to understand how land markets operate. Interactions of different stakeholders in relation to land is a crucial starting point in exploring land speculation. Hence, land rent and land price formation are investigated. Factors that influence land rents, starting from competition as highlighted by Ricardo(1821)to distance to the market highlighted by Von Thunen (1826) and then introducing concepts such as "situation value" by Alfred Marshall (1920)are analysed. These considerations are explored further in Contemporary Urban Location Theory and provide a better understanding how competing land uses in different areas of the city contribute to higher expectations of future land prices, which can impact the behaviour of landowners and trigger delayed development and land speculation.

This chapter assess further how these factors affect land speculation. Shoup (1970) approaches the quest of understanding the optimal time for land development by first explaining the concept of "highest and best use" in economic terms. He also introduces the phenomenon of underutilized land, as a form of land speculation. Additionally, the concept of Market Power is introduced by Mills(1980).

However, the discussion on land speculation should not be investigated only from the free land market perspective. Decisions on the timing of land development do not depend only on landowner's will to develop but also on the central and local territorial planning and management policies in place. While arguing why governments intervene in land markets, Fagin(1955)defines the concept of "timing of land development" by two elements: Tempo and Sequence. Tempo refers to the rate of urban development, whereas Sequence refers to the timely development of different areas in the city compliant to a prioritization process. The management of both these concepts contributes to ways in which land speculation is dealt with.

Further on, practical challenges in identifying land speculation are presented through two case studies, one in Rhodes Islands, Greece (Triantafyllopoulos, 2010) and one in Ontario, Canada(Widdis, 1979). Indicators on how to identify and measure land speculation are depicted from these case studies and elaborated further on in Chapter 3. Finally, the effects of land speculation on increased land prices and urban sprawl, together with their domino effect on increased costs in infrastructure provision, unaffordable housing and emergence of informality, loss of agricultural land and its implications on environment are discussed.

The discussion on land value taxation starts with an introduction to the history of property tax and its importance as an urban policy tool. Through different examples over time, property tax is depicted as a progressive urban policy making tool. Initially levied according to the productivity the agricultural of land, this tax has been conceptualized as a land value property tax since ancient times. Further on, Carlson(2005)argues that the tax rate has been subject to change in accordance to the need of the state to generate revenues, but similar argument was adopted also when the tax is used as an urban policy making tool. Thus, the role of property tax is not limited to its financial dimension.

Land value taxation can be designed and implemented in various ways, which affect its efficacy as a land policy tool. These aspects of land value taxation are investigated further on, through a thorough analyses of tax rate, tax base and tax governance. Finally, literature on the taxation of specifically vacant land and its expected effect on land speculation is investigated and presented.

## 2.1 Land Price Formation

Understanding how different stakeholders interact in relation to land and how land markets operate in urban areas, is a crucial starting point in exploring land speculation as part of land markets. Research regarding land rent<sup>9</sup> formation dates back to the 18th century, with the Physiocrats, when research about land rent was focused on agricultural land in a context in which cities were not important in the landscape and were viewed as "parasitic on the honest toil of agriculture"(Alonso, 1964, p.2).

### 2.1.1 Land Rent Theory

Amongst the most well-known classical theories on land rent is that formulated by David Ricardo(1821), in his work "On the principles of political economy and taxation". He starts his investigation trying to understand whether the creation of rent can affect changes in the value of commodities. In his work, he highlights his definition of land rent being "that portion of the produce of the earth, which is paid to the landlord for the use of the *original and indestructible powers of the soil*" (Ricardo, 1821; p.39). In this sense, he points out that in the work of Adam Smith, rent is referred to as the compensation paid for the use of timber from forests in Norway or for coal mines and stone quarries. However Ricardo (1821) seeks to clarify the difference between paying compensation for the liberty of benefiting from the produce of land, with no connection with the original and indestructible powers of the land and paying compensation for the liberty using them later.

From this perspective of land rent definition, he builds his argument that land rent is only paid because there is competition from the demand side to access it, otherwise if land were unlimited in quantity and similar in quality, no charge could be made for its use, similar to other natural resources with such characteristics such as air or water. Rent then only commences when land of an inferior quality, as compared to the most fertile one, is employed in order to supply the demanded produce, and the amount of that rent will reflect the difference in quality between these two parcels of land. Even though Ricardo(1821) considers the distance to the market as an important factor, his land rent theory was directed to fertility differentials primarily.

Distance to the market, translated as transportation cost, was considered as an important factor by Von Thünen, as he developed the theory of location differential rent further more. As Fujita and Thisse (2013) explain it, Von Thünen's model of land rent relies on the idea that each farmer faces a trade-off between land rent and transportation cost. In other words, the rent that each farmer can bid, in an efficient land market where supply and demand is equally well informed of the market, should amount to the savings that he will have in transport, as compared to a plot farther away in location, where transportation costs are maximized, and rent is theoretically zero. Hence rent in any location should be equal to the value of the produce subtracting the cost of production and transportation to the central market.

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<sup>9</sup>Here the term 'land rent' is interchangeable with 'land price'. Alonso referring to Ratcliff (Alonso, 1964), refers to price in its generic sense, including in this term the market expressions of contract rent, sales price and cost of ownership. Hence, the term "price" refers to the amount of money the bidder offers to the landowner so that he can use a unit of land for a given period of time, which generally is equivalent with long run rental value.

19th century economists referred to land rent mostly focusing on agricultural land. The first one to make reference to urban land was Alfred Marshall(1920),who coined the term "situation value", referring to the money value of the situation advantage of a site. According to this theory, the value of a specific site amounts to its situation value and agricultural rent of that plot if it were used for agricultural purposes. Alonso (1964) claims that Marshall's analyses contains the essentials of present day theory and that one of the most important contributions of his theory, was that this theory extended as to include the size of a plot as an important factor influencing land rents; a factor that had been ignored by many other scholars up to that point in time. The size of the plot relates to user preferences, and it is a characteristic that explains why higher income groups chose to live in the periphery, as opposed to the city centre which has a location advantage according to all classic land rent theories discussed so far. Hence, Marshall expanded land rent theory beyond transportation costs, by introducing other elements that impact land markets, such as the characteristics of the plot.

At the turn of the 20th century, Hurd(1903)also pointed out in his book *Principles of City Land Values* that he found few references to city land in economic books. His theory on land rent resembles to Von Thünen's model, referring to land rent as the comparative economic advantage vested in a plot of land when other more peripheral plots of land are employed due to urbanization(Alonso, 1964). A couple of decades later, Haig builds on Hurd's theory on land rent, highlighting the complementarity between land rent and transportation cost (Haig, 1926 cited in Alonso, 1964, p.6)According to him, transportation is a means to overcome the "friction of space" and the better the quality of transportation, the lower the friction. Nevertheless, site rents and transport cost represent the remaining "costs of friction". According to Alonso(1964), while transportation cost could be a major factor influencing location in space for agriculture, manufacturing or residential uses, it does not explain the locational preferences of land uses that are interested in maximizing revenues, as well as minimizing costs, such as retail. Such considerations are very important in understanding how different land uses compete in an urban setting and how they can impact land values as well as expectations on land values. These considerations are explored further on in *Contemporary Urban Location Theory* and provide a better understanding of how competing land uses in different areas of the city contribute to higher expectations of future land prices, which can impact the behaviour of landowners and trigger delayed development and land speculation.

However, economists haven't been the only ones interested in understanding land markets. Ecologists, through literature related to human ecology, have also been concerned about urban land values, from a sociological perspective, focusing more on residential locations(Alonso, 1964). In this context, Hawley(1950)seeks to explain an interesting phenomenon manifested in many urban areas, where valuable plots in the city centre are occupied by deteriorated structures whereas more peripheral plots are developed with newer modern structures. In this regard, he claims that: "The residential property on high priced land is usually in a deteriorated condition, for since it is close to business and industrial areas it is being held speculatively in anticipation of its acquisition by more intensive and therefore more remunerative land use" (Hawley, 1950, p.280, 281). Hence, he argues that the landowners might not be interested in investing for maintenance or building a new structure, thus renting it out for relatively low residential rents. The opposite happens with low-value lands, lands where there are few alternative uses. Landowners in this case are more prone in investing in the quality of their building, with the purpose of renting it out at higher prices. Following Hawley's rationale, it is important to understand that land speculation can manifest itself not only in the form of vacant land but also in the form of underdeveloped land in areas where a change in land use is expected inside the urbanized area.

Additionally, growth or its expectation impacts the behaviour attributed to the speculators in the urban expansion area (also referred to as peri-urban area), urban periphery or urban fringe, as it presents the possibility of additional changes in land use from agriculture/forest land to residential land use. New houses in periphery mean either population growth or increasing vacancy rate in the central area (Alonso, 1964), factors that need to be considered when trying to understand land speculation. Henceforth, in understanding land speculation, the distribution of urban land uses needs to be investigated, as it is the shift in land values created by a change in land use one of the main motives that triggers withholding land from the market, waiting for a land use change to occur.

### 2.1.2 Contemporary Urban Location Theory

In their book "Urban Economics: A Global Perspective" Balchin, Isaac et al. (2003) argue that different activities competing for land determine the land use pattern, through variances in demand and supply. In this sense, demand is the quantity of land required at given prices of rent and supply is the amount of land available with those specific characteristics at that specific rental price. Similarly, to other kinds of investment, land prices rise in anticipation of future increases in rent incomes. Therefore, property investors are prepared to yield lower rents in anticipation of higher future benefits and additional capital gains. Even though land markets are different from other commodities' markets, in that the supply is considered to be fixed, changes in land use regulations can impact the supply of land for a given land use in the urban context. Because supply reacts slower towards demand changes, it is demand which is considered to be the major determinant of values of rent (Balchin, Isaac, et al., 2003) therefore understanding demand patterns becomes important in terms of location theory.

As explained in the previous section, classical theory on land rent was based on the principle that rents decrease outward from the centre of a monocentric city, in order to offset both lower revenue and increased costs such as transport costs. According to Alonso's bid-rent concept, where different rent gradients intersect, there should be a change of land use to the activity that pays a higher rent.

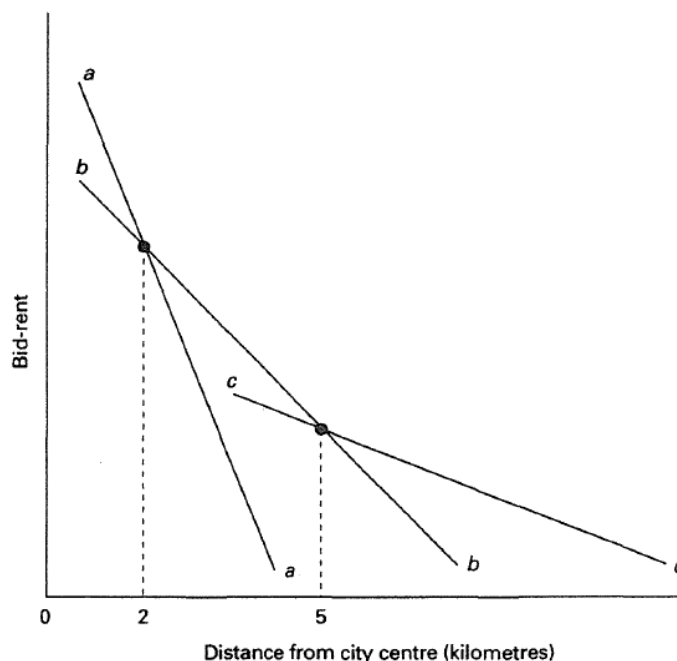


Figure 2 Relationship between bid-rent and distance from city centre (source: (Alonso, 1964))

Eventhough Alonso doesn't specify the types of land uses in its model, it is assumed that on the edge of the urban area, agricultural land uses are dominant. It is precisely in that area, where urbanization becomes imminent and agriculture land use becomes secondary, that most likely speculative values of land arise (Alonso, 1964).

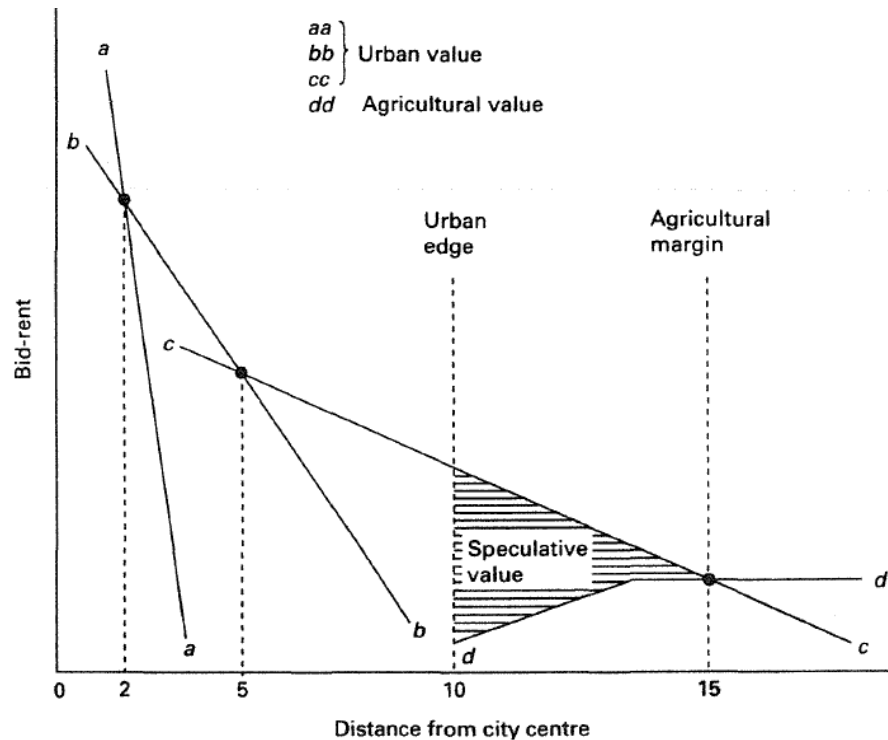


Figure 3 Urban, speculative and agricultural values (Source:(Alonso, 1964))

However, in contemporary cities the implication that transportation costs increase continuously once you move out of the Central Business District (CBD), is not necessarily true. This gradient is rarely smooth, as transportation costs reflect more accessibility than distance. Hence, locations close to nodes, terminals, stations and stops are particularly favoured due to their increased accessibility (Balchin, Isaac, et al., 2003). Therefore, as decentralization of functions occurs in the city, shifting from a monocentric model to other forms of city organization, i.e. polycentric, transportation costs might not decline from CBD outwards. Similarly, revenues are not always positively correlated to distance to CBD. Hence a closer look at specific land uses and their patterns of costs and revenues should be considered. Analysing both locational costs and revenue implications, Balchin, Isaac et al. (2003) have investigated 3 main land uses: Industrial location, Retail location and Office location. Further below, this analysis is completed with residential location factors.

#### i. *Industrial location*

The least cost approach was introduced by Weber (Weber, 1909 cited in Balchin, Isaac, et al., 2003, p.198), who presented three main factors that impact location for commercial use: transport costs, labour costs and agglomeration or deglomeration economies. In each situation, the optimal location is the one that provides the biggest positive difference between costs and revenues. Also, transitioning from Fordist to Post-Fordist production technologies had its implication in terms of locational preferences. Older technologies implied the need for large-

scale factory space, on a single site, and access to semi-skilled labour force. With the latter technology, work is characterized by out-sourcing, utilization of smaller scale plants, often located not on the same site, and proximity to higher skilled labour. Hence in terms of industrial land use, headquarters might be competing with other commercial uses in CBD, while manufacturing plants might be competing with periurban residential areas and/or agricultural land uses. The impact of agglomeration economies should also be taken into account (Balchin, Isaac, et al., 2003). Concentration of certain industrial activities in one area, might impact the expectations of the land uses in the surrounding parcels.

*ii. Retail and office location*

Retail location theory analyzes both with the consumer's preference of store as well as retailer's decision to locate the store (Balchin, Isaac, et al., 2003). Referring to Christaller's central place theory, it suggests that consumers are willing to travel longer distances when buying expensive products, while they would travel shorter distances for inexpensive products. On the other hand, the location of office space is relatively more flexible, depending on the type of activity. International and national financial and business headquarters tend to locate in larger cities, where maximum agglomeration economies can be achieved, whereas smaller offices can be located in smaller cities and have a more dispersed pattern of location. Similar to retail, transport and communication costs are important also for office activities. Thus, CBD is generally the preferred location for many head offices, taking advantage of the higher accessibility to a diverse range of labour market, communication technologies and other competitive advantages that this location offers (Balchin, Isaac, et al., 2003)

*iii. Residential location*

Segal (1977) refers to five main characteristics to be considered in a residential area when evaluating its attractiveness from the demand side: the physical characteristics of the neighbourhood, such as the design and organization of buildings, accessibility to the neighbourhood, related to the job areas and places most visited by the specific residential target group, the socio-economic characteristic of the neighbourhood, such as the community living in the neighbourhood, environmental characteristics, including landscape and weather, and public services, related to education, health, leisure etc. Analysing these characteristics in a given context, as well as the user preferences related to these five characteristics, would enable an identification of location patterns of residential areas in the city.

### **2.1.3 Expectations and land speculation**

Both Land Rent Theory and Contemporary Urban Location Theory are fundamental in analysing land markets, the behaviour of actors in these markets and what can be identified as land speculation. But the subject of land speculation is not a straight-forward one and establishing a common understanding of this concept, or at least what this term will be used for in this study, is fundamental. Hence the quest to define what land speculation is starts from defining "speculation". Ely (1920) suggests that since the term is legal, as much as economic,

its legal definition shall be sought in sources that make excellent treatment of legal terminology, such as Century Dictionary, which defines speculation as:

"The investing of money at a risk of loss on the chance of unusual gain; specifically buying and selling, not in the ordinary course of commerce for the continuous marketing of commodities, but to hold in the expectation of selling at a profit upon a change in values or market rates. Thus if a merchant lays in for his regular trade a much larger stock than he otherwise would because he anticipates a rise in prices, this is not termed speculation; but if he buys what he usually does not deal in, not for the purpose of extending his business, but for the chance of a sale of the particular articles for a profit by reason of anticipated rise, it is so termed. In the language of the exchanges, speculation includes all dealing in futures and options, whether purchases, or sales".(Century Dictionary cited in Ely, 1920, p.122)

Although land differs from other goods, thus land speculation cannot be confined in the above definition, the latter does bring some concepts that are important in land speculation as well: risks, danger of considerable loss and hope of large gain. From this point of view, land speculation refers to investment in land, but not all kinds of investments in land are speculative. Similar to speculation in the stock market, investment is buying stocks once you know their value, whereas speculation consists of efforts to guess what the value will be. Therefore, land speculation refers to investments in vacant land located in districts where its future value is expected to grow, depending on future developments, changes and/or improvements (Ely, 1920, p.123). Referring to Marshall's concept of 'situation value', this value can arise from competition on the demand's side for a specific plot of land, due to its locational advantages. These locational advantages, as explained by Contemporary Urban Location Theory, can be enhanced improvement in the physical environment, such as infrastructure, advancements in transportation technologies, as well as changes in regulations, such as land use change, that attribute that particular plot of land more development rights. Forecasting such changes would be the occupation of an active land speculator. But is land speculation always based on such calculated forecasts? And is all idle land subject to speculation? Not necessarily. Urban land can be vacant simply because the optimal timing for its development has not arrived yet. Urban Planning instruments foresee a certain amount of "reserve" land within the urban border, which will serve for future urban expansion needs. Therefore, not all idle land is vacant due to land speculation. In fact, distinguishing between land speculation and vacant land whose optimal time for development has not arrived yet is very important. If such a distinction fails to be made, land value taxation might have an adverse effect, leading to immature development of land. Hence understanding the concept of "timing" in land development is very important.

## **2.2 Land Market and Land Speculation**

### **2.2.1 Optimal timing of land development and factors that impact it**

Shoup(1970)approaches the quest of understanding the optimal time for land development by first explaining the concept of "highest and best use" in economic terms. He argues that, in order to maximize its value, land should be allocated to the use that guarantees the highest present discounted value of marginal product, among all other uses. The present discounted value of marginal product is to be determined by the production function in which the land enters, and revenues generated as a result of the demand for the service in that particular location. In this case, the production function analyses the relation between land and capital and the present value of the real estate development. Hence in a static model, thus isolated from

all other occurrences in the city, he argues, the highest and best use of land is that which guarantees the highest residual value of land, calculated as the difference between the total value of the property and the construction costs (Shoup, 1970, p.33, 34).

However, in a changing environment over time, the highest and best use of land might not be achieved at present time. Thus Shoup (1970), furthers his argument by analysing the dynamic case, in which development of land is analysed over time. In a context of population growth, the need for housing and services increases, increasing the demand for such land uses in the city. Nevertheless, on one hand public investments such as roads, underground infrastructure and other services would most likely increase the demand for development in the adjacent properties. Other circumstances such as the proximity to a land use with negative externalities, would decrease the demand. Hence this is not a one way or linear process; some of these changes might increase demand and consequently also the present value of land's marginal product, and other changes might decrease it. Ideally, identifying when this value is maximized, when all these factors combine, is of crucial importance, since once land is developed, construction commits the land to that use for a long time. For Shoup (1970), land should be developed when the rate of increase of the development value<sup>1011</sup> of the vacant site equals the discount rate<sup>12</sup>. This changes if a property tax is introduced, in which case the land should be developed when the rate of increment of development value of the vacant site equals the discount rate plus the tax rate(Shoup, 1970, p.35-39).

So far, the analysis has referred specifically to vacant sites. However, while the owner of a plot might delay the ultimate development waiting to achieve the highest profit, he might decide to introduce temporary uses to this land, to yield an interim income. These temporary activities generally involve low amounts of capital investment, such as paving it for a parking lot, renting it for advertisement signs, building temporary structures, and the like. In this case, the rate of increase of the development value, from the existing use to the proposed development, should equal the discount rate plus tax rate subtracting the interim income generated from the temporary activity, that will no longer operate<sup>13</sup>(Shoup, 1970, p.39, 40).

While Shoup (1970)approaches the question of timing of land development from a strictly financial perspective, he disregards the role of different agents in altering the conditions of land markets, especially that of land speculation. In his paper "Market Power and Land Development Timing", David E. Mills(1980)introduces the concept of *Market Power* when discussing about the timing of land development. According to Mills a landowner has market power if land similar to his, in terms of location or physical characteristics, such as topography, is scarce. In other words, the more limited the supply of similar land, the higher the market power of the owner of that land. He develops his analyses by comparing a competitive regime, where market power of landowners is relatively low as supply of land is sufficient and competitive, with a monopolistic regime, where the market power of landowner/s is higher due to their monopoly on the scarce land. In a competitive regime, assuming a symmetric distribution of information amongst all actors and lack of externalities and other market imperfections, the development of land is more socially efficient. Whereas in a monopolistic

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<sup>10</sup>Here the term "development value" refers to the market value of the building/ structure that shall be developed on the vacant land

<sup>11</sup> Here the term "rate of increase of the development value" refers to the ratio between future development value  $V'(T)$  and current development value  $V(T)$ .

<sup>12</sup> $V'(T)/ V(T) = r$

<sup>13</sup> $V'(T)/ V(T) = r + t$  (tax rate) –  $i$  (interim income from temporary activity)



regime, the monopolist will exercise his market power to maximize his discounted profit<sup>14</sup> from land development. Hence Mills (1980) concludes that when market power is higher the land development pace decreases and so does its social efficiency.

However, decisions on the timing of land development do not depend only on landowner's will to develop but also on the central and local territorial planning and management policies in place. As Henry Fagin states: "Static space coordination is not merely inferior, it is impossible in a dynamic world", referring to Master Plans that fail to provide a timely coordination of the necessary territorial interventions (Fagin, 1955, p.299). Hence, according to him, a time coordination of development is required alongside each planning decision, focusing on two main aspects: Tempo and Sequence. Tempo refers to the rate of urban development whereas sequence refers to the timely development of different areas in the city compliant to a prioritization process. Fagin (1955) states that there are several reasons why planning authorities might intervene when it comes to timing of land development. First, the need to economize the costs of infrastructure and services provision requires a coordination over time of land development. This is accompanied with policies promoting compact development, which utilizes existing infrastructure to its fullest efficiency in already developed areas and rationalizes the use of resources in a smart way. Alongside with this logic, another reason for authorities to control the timing of land development is to maintain a high quality of services and infrastructure provided. If new developments occur faster than the provision of additional services and infrastructure, the existing one can become overcrowded and as a result might depreciate faster. The third reason is the need to retain control over the character of development. In this case, authorities seek to prevent the premature low intensity development of a site, which could have been planned to be developed at a higher intensity in the future, when demand for that development in that area increases. Similarly, the timing of land development is also used as a tool to guarantee balanced distribution of land uses. In this way, the development of one land use is made conditional upon the development of other land uses that might complement one another. Finally, authorities influence the timing of land development in order to achieve a greater detail and specificity in the development regulation. Fagin (1955) refers to the case of Great Britain, where the need to achieve more detailed control on the new developments led to the public acquisition of development rights. This way, the public authorities can grant or delay the development of certain areas, depending on their compliance to detailed municipal plans (Fagin, 1955).

Hence, while delaying of the timing of land development could suggest speculative activities of landowners in their quest to maximize their land values, it could also come as a result of urban development policies from central and/or local authorities, seeking to have a higher control on territorial development.

## **2.2.2 Land Speculation - Who speculates and how?**

*"Speculation has as many facets as there are speculators"* (Widdis, 1979, p.339)

Given the numerous factors that affect the timing of land development, identifying speculative behaviour with land becomes a challenging task. Although in some studies there has been attempts to define some characteristics of its physical manifestation, such as the most probable

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<sup>14</sup>Future profits discounted to present values using an appropriate discount rate.

location where speculation is more likely to occur, or the average size of vacant land that could possibly be subject to speculation over time, there is still not a widely accepted methodology that facilitates its identification and quantification. In his paper "Land Speculation and Property Market (In)Efficiency", Nikolaos Triantafyllopoulos(2010), explains through a collection of definitions, that land speculation is a complex concept that can take many forms. As established by many authors working on land rent theory, discussed above, this complexity stems from the fact that land has a distinguishing feature, that of capitalizing the effect of externalities, institutional and legal factors, public investments and goods, and the like (Marshall, 1890 cited in Triantafyllopoulos, 2010, p.231), which have a direct impact on land prices and rent. Malpezzi and Wachter refer to speculation as a synonym of investment(Malpezzi and Wachter, 2005 cited in Triantafyllopoulos, 2010, p.227). Despite its complexity, Triantafyllopoulos combines concepts from Evans (1983, 2004) and Gaffney (1994) related to land speculation in one encompassing definition as follows:

“The act of investors who purchase land but keep it vacant without making any improvements to it, thus realising ‘unearned increment’, or in anticipation of future development opportunities, or they delay development until the uncertainty about the most profitable use is clear, this option being mostly related to planning regulations.”

(Triantafyllopoulos, 2010, p.227).

For Henri George(1935), speculation is one of the major causes of micro-economic and macro-economic disturbances. In this respect, it is important to make the distinction between speculation in stock and commodity markets, in which speculation is believed to push forward production where it is needed, and speculation with land, where supply is inelastic as the amount of land is fixed (Marshall, 1890, 1997, cited in Triantafyllopoulos, 2010, p.227). According to Lo(2004, cited in Triantafyllopoulos, 2010), agents operating in the land market adopt speculative behaviour based on the positive or negative feedback that they receive for their "best guess" in trying to rationalize their future expectations. Viewing it from an individualistic perspective, speculation can be considered as an economic action undertaken by someone to maximize individual profits, however putting it into a broader perspective, where such an activity is undertaken under the conditions of limited resources, it creates an overall inefficient property market(Triantafyllopoulos, 2010)extending its effects not only spatially but also socially.

Land speculation has impacted the landscapes of many cities, from 17th century Paris (DeJean, 2014) to 18th century cities in Alabama, Tennessee and Mississippi(Chappell, 1949) and so on; mostly cities facing radical restructuring, expansion or newly established cities such as the case of US and Canada. In his quest to present a methodology of identifying land speculators in Canada, Widdis(1979) (1979) analysed their role in the city of Ontario. Referring to previous studies on land speculation, he highlights their shortcomings in terms of methodology, focusing only on the amount of land held by an individual as an indicator for speculative behaviour. Land speculators can be defined as individuals who purchase and retain land with the intention of selling it later to make a profit.

“Speculation involves the assumption of a business risk in hopes of procuring gain. It is most often associated with the act of buying and selling in expectation of achieving a profit. On this basis, the individual speculator is defined as a person who acquires and holds land for the express purpose of selling part or all of it at a later date for a profit.”

(Widdis, 1979, p.338)

Hence based on this definition, the central argument of his article is that speculation can be defined by the motivation of landowners/speculators not by the scale of their operation (Widdis, 1979, p.338). Widdis(1979)claims that in 1825, 62% of the land granted for development to that date in Upper Canada was in the hands of speculators. During this period, before development had substantially begun, Upper Canada was a province without residents, and hence a land development policy that would precede the regulation of such development was necessary. The way this land policy was elaborated however, since its outset, set the stage for speculative activity to thrive. Military men were entitled to more land, and so were companies who were supposed to assist groups of settlers. Also, government used land as a means to reward people for many things, which shifted the approach to land as an agricultural means to a means for capital accumulation. Land reserved to the church and the crown amounted up to 28% of the overall land granted for development. This institutional speculation was exacerbated also by private speculation, given the way land was distributed and that settlement was not enforced until 1820. Through this analysis, Widdis(1979) challenges the idea that land speculation is related only to the private sector, and explains how the public sector could impact it, either through land policies or as a large landowner.

Besides bringing forward the discussion regarding the diversity of speculators, including the role of the public sector, Widdis'(1979) innovative approach to identifying speculation activity contributed to the existing debates in the late '70s. While as stated above, most methodologies so far had adopted a "scale of operation" approach, hence identifying speculative behaviour based foremost on the size of the vacant land, Widdis(1979)discussed about the motivations behind land transactions or withholdings. He argued that the scale of land withheld from the market could be an indicator related to large scale speculation, however it could also be a characteristic of large farms thus unrelated to speculation, hence the importance of investigating the motivation prevailing behind such withholdings. While this makes sense in theory, such an investigation in practice is difficult. Widdis (1979)suggests approaching this through analyzing landholding behaviour, emerging patterns of land speculation and present a typology of speculators. Given that speculation is mostly motivated by higher profits, land value could be an important indicator. For speculators land has inherent value, whereas for farmers land has value if it can be made productive. However, this approach poses a more complex issue: defining "reasonable" and "unreasonable" margins of profit. While higher margins of profit would suggest speculative behaviour, this might not always be the case; for instance a farmer would decide to sell his farm and might have been lucky to settle a good deal(Widdis, 1979).

So Widdis(1979)analyzes landholding behaviour from another angle, synthesizing it into these main characteristics: first, speculation is associated with large amounts of land, second, a speculator is depicted as someone who will not spend large amounts of money on improving their property and thus the amount of land cleared will generally be low and third, speculators don't usually invest large amounts of capital seeking to buy land as cheaply as possible - however this might not always be the case, as will be explained later. He operationalized these characteristics into four main indicators to be measured for the period 1825-1840, subdivided into three sub-periods. The indicators he measured were: 1- large holding sizes, 2- a significant change in the amount of surface area of land held during this time period, 3- a small amount of acreage cleared initially and 4- a decrease or very small increase in acreage cleared during this time period. He analysed not only properties that were compliant to all four indicators, but also the ones that were compliant to 1, 2 and 4, suggesting that this might be the case of properties

that are subject to speculation that had however been cleared before being purchased, and properties compliant to 2, 3 and 4, suggesting that if the landholding behaviour indicates speculative activity regardless of the land size, it could be the case of small scale speculation (Widdis, 1979).

Analysing his findings, Widdis(1979)describes land speculation behaviour linking it to the stage of city development. In the first period, hence 1825-1830, land compliant to the indicators established in his methodology and presented above, were mostly larger in size and located close to the market or river/water bodies, given that the latter were the main mode of transportation at that development stage of the city. Further on, during the second phase, hence 1830-1835, the initial properties were sold, and other property was bought, maybe at higher prices, still to be retained when their prices would increase even more. At this point, Widdis(1979)claims that speculation attracts speculation, suggesting that in some cases land subject to speculative withholding was being transacted from one speculator to the other. Finally, the findings during the third period, 1835-1840, present smaller scale land holdings which might be further from rivers or water bodies, given a more advanced development stage in the city and infrastructure as a result. Hence the connection between city development stage and speculative behaviour is a particularly interesting finding in Widdis' (1979)work, which suggests that the physical manifestation of speculation can vary with regards to the context where it occurs.

Finally, Widdis (1979)identified two main types of speculators: the classical speculators and land bankers. The first type of speculator is the landowner of larger scale plots that passively withholds land from the market waiting for its value appraisal. Given the minimal level of effort required in this case, the landowner could also be a non-resident, although this was not the case in the site in Upper Canada investigated by Widdis (1979). The second type, the land banker, are the ones that are actively buying and selling land, similar to brokers in the stock exchange market. In this case, the tempo of the transactions is faster, and quick profits are expected.

### **2.2.3 Effects of land speculation**

#### *i. Increased land prices*

As discussed earlier, Von Thünen (1826, cited in Fujita and Thisse, 2013) argues that land rent represents each farmer's trade-off between transportation costs and land rent. Hence, from this perspective, he argues that in a free market, land use is defined by the use that is capable of offering the highest bid, or in other words, it is defined by the ability of competing bidders to offer the highest opportunity cost of land. Marshall elaborates this further, when he argues that the capitalized value of land is the discounted value of all net incomes resulting from the use of land, after expenses are subtracted (Marshall 1890, 1997 cited in Triantafyllopoulos, 2010). Based on Von Thünen's and Marshall's theories, Triantafyllopoulos(2010)explains the gross land value as the value of the completed development on land in the future, minus the development cost, the cost of money, as well as other operating costs and the profit of developer.

However, this is not always the case in practice. While studying speculation in the island of Rhodes, Greece, Triantafyllopoulos(2010) observed the relation between land prices and hotel room prices, challenging the above-mentioned theories that land prices result from net incomes resulting from the use of land. What he found was that while in 1973 the average price of land near the seashore was 1 €/m<sup>2</sup> and the price of double-bedded room was 1 €/m<sup>2</sup>, this ratio increased to 3:1 by 1995 for the same area. Referring to Bourassa, he states that when the actual land rent is higher than the potential land rent, such as the case of Rhodes, it indicates that the site might be subject of speculation in anticipation for higher future profits, or there are market interventions from the government such as subsidies, or that the value of land rent has been miscalculated (Bourassa, 1993 cited in Triantafyllopoulos, 2010). Also, when analyzing the cadastral data, Triantafyllopoulos (2010)noticed that land prices increased as the number of transactions<sup>15</sup> related to land increased. However in this case, the average number of plots sold over time decreased while the number of transactions increased, hinting that the same plots were subject of several transactions, which could indicate investments in land for speculative purposes(Triantafyllopoulos, 2010).

Archer (1973) also argued that land speculation contributes to increased land prices, first by increasing speculative demand for land and then by reducing the supply of land in the market. This in turn is reflected in the increased prices in housing and other types of built up uses. Higher prices of land in favourable locations push development to the periphery, where land is cheaper. Although the land is cheaper, the resulting urban sprawl and distance from the main amenities can increase the overall development cost, which are partly covered by all taxpayers, as well as the living costs of the consumers/buyers, as shall be explained in the section below.

## ii. *Urban Sprawl*

Land speculation, especially in the urban fringe, can cause urbanization to leapfrog resulting in scattered development and urban sprawl. In his paper "Land Speculation and Scattered Development; Failures in the Urban-Fringe Land Market" Archer(1973) argues that farmers and developers can also behave like speculators, withholding their land from the market. When this happens, builders bypass this land pushing the development in more remote areas, where land is more affordable. However, as land prices decrease, costs of developing and living in more remote areas increase. Building on Dr Bahl's work, Archer(1973) approached the issue of urban sprawl as a result of land speculation by analyzing the case of Gainesway' subdivision, two miles south from the urbanized area of Lexington, Kentucky. In this case, development bypassed five vacant land plots suitable for development. Eventually the area next to the vacant plots was developed for higher middle-income housing and hosted some 337 houses with about 1240 inhabitants. Through his research, Archer (1973)concluded that due to the two mile leapfrogging of the development, additional costs amounting to \$272,534 were created. This represented a cost of \$810 per annum per household, or \$1360 per acre per annum for the overall development. These costs included utilities and/or municipal costs and transportation costs. The latter was the one that generated most of the overall costs, even without monetizing the extra travel time of drivers and passengers(Archer, 1973).

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<sup>15</sup> How often a plot of land is bought and sold in the given period of time covered by this study from Triantafyllopoulos (2010)

While studies on increased costs on infrastructure and transportation caused by urban sprawl are not new, the innovative contribution of Archer's(1973) work was in researching how these costs were distributed among different actors. Given that the biggest contributor to the overall costs was transportation, consequently most of the additional money costs (63.2%) were covered by residents. Surprisingly, only 6.6% of all additional costs were covered by the taxpayers, while 27.7% were covered by private service providers. The latter, distributed these extra costs to all consumers, and did not impose higher prices on the residents located in remote settlements, due to the increased administrative costs that this would entail. Hence all city consumers of these privately provided utilities and services had to bear the costs of providing services in more remote areas, in other words, the costs of urban sprawl(Archer, 1973).

On the other hand, the land values of the vacant plots next to the development, appreciated to a market value average of \$129 per acre per annum(Archer, 1973, p.371). Deducting the property tax of about \$3.10/acre per year, the average return of the capital invested in land in this area was less than 5% per year. According to Archer(1973), having a return in investment of less than 5% p.a<sup>16</sup>, at a time when tax-exempt bonds with AAA rating yielded a rating of 3.0%-3.2% p.a. makes the investment in speculative activity in that area not profitable during the 1956-62 period. What were then, the factors that produced this market inefficiency for all actors involved? Archer(1973) believes that the stakeholders involved were not fully conscious about the costs and revenues of their decisions. He claims that the land market in the urban fringe will ensure efficiency if land-owners, developers and homebuyers are confronted with the full cost-benefit analyses of their actions and decisions. Homebuyers might not have been able to correctly calculate all extra costs of settling in a remote location to the urban area. A contribution to this lack of awareness might also have been the fact that almost one third of the extra costs generated (27.7%) were covered by the private service providers, through distribution amongst all consumers, not just the residents of these remote areas. While the modest contribution of 6.6% of the overall extra costs by the government, explains why authorities were indifferent towards land speculation and its effect on urban sprawl in Lexington. Finally, in the case of Lexington, retaining the land from the market was not the wisest financial decision to be taken by the speculators either. Their expectations regarding the increase in value of their land were not realistic during the period analysed in this study, and these incorrect estimations can be attributed to market uncertainty (Archer, 1973). Ultimately not all speculation is successful.

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<sup>16</sup> Per annum

## 2.3 Property taxation as a tool for land policy

*Pothinus once asked Julius Caesar, "Is it possible that Caesar, the conqueror of the world, has time to occupy himself with such a trifle as our taxes?" Caesar's response "My friend, taxes are the chief business of a conqueror of the world."*

(Carlson, 2005, p.4)

### 2.3.1 A brief history of property tax

Property tax is one of the oldest forms of taxation (Bird and Slack, 2004). It has always played an important role in revenue generation (Carlson, 2005) and later on, in terms of land policy implementation. In fact, Carlson (2005) claims that property tax preceded the monetary system, in which case it was being paid as a percentage of the crops yielded by the land subject to taxation. Dating back to 6000 years B.C. in modern Iraq, throughout the ancient world, in Egypt, Persia, Babylon and China, property tax was typically levied according to the productivity, hence value of land. Eventhough the main purpose of the property tax was revenue collection, mostly contributing to the treasury of the king but also to provision of public services, property tax was also used to incentivize a more efficient use of land. During Augustus Caesar's rule, the land valuation system was not based on what the farmer actually produced, but what he *could produce* (Carlson, 2005, p.4). It was in this context that the concept of *highest and best use of land* was firstly being integrated in public policy when it comes to land.

Through time, property tax has been reformed in countless ways, seeking to adapt to different contexts. Hence property tax rate, base and governance has been subject to constant transformation. According to Carlson (2005) tax rate has been subject to change in accordance to the need of the state to generate revenues, being higher in times of war for instance, when revenue generation is important to support the war expenses, and dropping in periods of great economic depressions. Moreover, tax base has been subject of change and context adaptation. In the early years of the Roman Republic, for instance, the property tax base included land value, building value as well as all other personal property, such as plants and animals, while today this tax is applied only to immovable property such as land and/or buildings. When it comes to tax governance, tax assessors played a major role in Ancient times, however their figure was quite controversial; from high valued officials in ancient Greece to evil and low-class citizens that often required military protection while carrying out their work. During medieval times, starting from England during the rule of William the Conqueror, the assessment and registration of property took a step forwards towards the formalization and elaboration of cadastral registers. Later on, the responsibility for property tax law enforcement, tax assessment and collection fell on the town sheriff or shire, who was the most important local government official. This practice was later on adapted also in the colonies. For instance, Carlson (2005) highlights the case of Boston Town Records of 1676, which was an elaborated database containing the name of each taxpayer, the surface area of the land, the value of the structures on it, the amount of cattle he possessed, as well as the value of mills and personal estate. Also, the case of Boston is an example of one aspect of property valuation that has been common throughout history: the underassessment of the property compared to market value. In the case of Boston, the Memorial History of Boston stated that property was worth almost five times its registered value. Also, Boston case is an early example of the application of tax exemptions, for the lower income groups, the senior citizens, or people with various

disabilities. Carlson(2005)also touches the still ongoing debate related to which government tier should be in charge of property tax, from policy elaboration to collection. In this case, he highlights the two important camps after the revolution in US: the Alexander Hamilton camp who rooted for a property tax that is controlled and managed centrally and the Jefferson camp on the other hand, who claimed that a locally managed property tax suits more democracy. Overall, property tax has played a major role as a revenue source; throughout the 19th century most states and local governments in US raised their revenues through this tax. Eventhough at the turn of the century, the fiscal policy shifted towards the introduction of other taxes, like income and sales tax, diminishing the role of property tax, the latter still remains an important tool, especially from an urban management perspective(Carlson, 2005).

### **2.3.2 The role of property tax**

Up to date, property tax has played an important role, both as a fiscal and non-fiscal tool. The extent to which central and local governments have taken advantage of the property tax and have succeeded in generating revenues or encouraging/discouraging certain land development patterns, varies from one country to another, and in many cases, from one locality to another. The International Handbook of Land and Property Taxation edited by Bird and Slack (2004), highlights the different ways in which property tax can be elaborated and managed, by presenting a collection of studies in 25 different countries. As a revenue generating tool, property tax plays an important role in strengthening the local governments' fiscal autonomy, especially in OECD countries, where this tax's rate is more significant and its governance more efficient. In developing countries, property tax yields considerably less revenues, although not insignificant amounts when compared to the relevant local budgets. Bird and Slack(2004) argue that this occurs mainly due to the fact that in many developing countries the tax coverage is not comprehensive, as a result of outdated databases and outdated property value assessments, as well as due to low tax rates and collection rates. In these cases, simply increasing the tax rate would result in inequality given that this added burden would fall only on the portion of the population that is identified in the tax database; hence more thorough reforms are needed. Despite many challenges facing public authorities with regard to property tax elaboration and implementation in developing countries, property tax remains the main option for revenue generation in local governments in Latin America(Cesare, 2002 cited in Bird and Slack, 2004, p.14).

Additionally, the role of property tax is not limited to its financial dimension. Instruments used by local governments to raise revenues can serve also as instruments to direct the location, type, density and timing of development (Bird and Slack, 2004, p.15). Such is the case with property tax as well. Depending on the tax base, as will be explained further below, property tax can reduce density, when higher rates are applied on improvements, or promote compact development, when higher rates are applied on land. Similarly, the development typology can be influenced through certain property taxation policies. For instance, in some occasions local governments want to encourage the development of residential areas as single-family houses. Property taxation policies that can be applied in such cases, as have been documented in the United States, can vary from under-assessing the value of single-family residential properties, to legislating lower tax rates for such buildings and also, in some cases, to granting tax credits



to single-family homeowners (Bird and Slack, 2004, p.38). However, it is important to highlight that property taxation policies designed to increase the amount of revenues generated can also have an adverse or unexpected impact on land use. For instance, in most countries, non-residential properties, including commercial, industrial and other special uses, are taxed higher than residential uses, in order to generate higher revenues. If the property tax is considerable, this variation in property tax can result in distortions of land use decisions, favouring residential uses over commercial or other non-residential uses (Bird and Slack, 2004, p.38).

However, the impact of the property tax and its effectiveness in revenue generation and as a policy tool, depends very much on the way the property tax policy is designed, administered and implemented. This changes a lot in different contexts, especially as a result of differences in tax base, tax rate and tax governance. The ways these tax components influence its effectiveness are explained below.

### **2.3.3 Components of property tax and land value taxation**

"Land value tax is a variant of the property tax that imposes a higher tax rate on land than on improvements, or taxes only land value" (Dye and England, 2010, p2). Land value tax, like property tax in general, is more complex than what it looks to be at first sight, thus evaluating its composing elements, such as tax base, tax rate and governance, is important to gain some perspective in the way the burden of the tax is distributed amongst property owners and in the way it might impact land use policies (Salm, 2017).

#### *i. Tax base*

When discussing about the tax base, two are the main questions to be addressed: *What is being taxed?* and *How is property being taxed?* In order to have a clear understanding of what is being taxed, it is first important to explore the concept of property, property rights and obligations. According to Günay (1999) property is a 'right', the subject matter of which is a 'thing', either tangible or intangible. While it is common to associate property with rights, it is less popular to analyse it under the light of obligations. Setting the ground for the social-obligation theory, Alexander (2013) discusses that the foundation of property, as a concept as well as an institution, should rely on human flourishing. As such, he claims that it is important to recognize the social obligations that come along with property ownership (Alexander, 2013). From this perspective, property tax is an obligation associated with property. In the majority of cases, property tax is imposed to immovable property, and can be applied to all types of properties: residential, commercial, industrial, agricultural and of other uses. In some countries, only land is taxed (Ukraine), while some other countries tax only the building (Tanzania) (Bird and Slack, 2004). However, in most cases the property tax base is both land and improvements (buildings) (Bird and Slack, 2004, p.19) also referred to as graded property tax (Oates and Schwab, 1997) or two-rate property tax (split-rate property tax) (Dye and England, 2010). Proponents of land value taxation, meaning systems that tax only land or have much higher tax charges on land than on improvements, suggest that increasing the taxing rate on land has only a few negative outcomes while lowering the taxing rate on buildings would generate many benefits (Dye and England, 2010, p.2). Hence such a tax, sometimes called 'site value taxation' can improve the efficiency of land development, since in principle this tax relates to location rents, and as such it incentivises the owner to put his land to its most profitable use (Bird and Slack, 2004, p.19). However, some empirical evidence in Pittsburgh, U.S. shows that a tax on

land, given certain preconditions, can result to have a neutral impact in terms of development decisions (Oates and Schwab, 1997). The debate on land versus improvements taxation is an important and ongoing one and shall be further explored in this Chapter 2.

Whether the tax base comprises land or improvements or both, in every country there are some properties that are exempted from property tax obligations. These exemptions can derive from property ownership, ownership and use, and property value (Salm, 2017, p.26). Even though exemptions vary in different legislations, some common exemptions are property owned by public authority, religious entities, universities, healthcare facilities, charity institutions and sometimes properties owned by international organizations (Bird and Slack, 2004, p.25). In some cases, exemptions might be made for lower income groups and property tax might be adjusted to their ability to pay. In other instances, exemptions are used as a tool to encourage a certain type of development, for example property tax exemptions for businesses financed with foreign capital. Bird and Slack (2004) point out that exemptions have been criticized on several grounds; such as in their inequality in distributing the costs of urban services amongst all beneficiaries, including the public authorities, in the way that these exemptions might affect location decisions and hence distort the market, and especially because of their negative impact on reducing the tax base. Hence designing of such policies should take into account their counteractive effects on land development and revenue generation.

Once “*What is being taxed?*” has been established, the next step is to determine “*How is property being taxed?*”, or in other words the value of the property that is subject to the tax. Bird and Slack (2004) referring to the practice of 25 countries analysed in their publication, identify three main methods used by public authorities around the world to assess the value of properties to be taxed: area-based assessment, value-based assessment and self-assessment. The area-based assessment method is used mostly in Central and Eastern Europe, or countries where property markets are not very developed and hence determining the exact value of each property becomes very challenging. To overcome this challenge, under this system, a charge is levied per square meter of property; in cases where both buildings and land are taxed, each one has a specific charge applied to the relevant surface areas. The charges applied to the surface area of the properties might differentiate within the city, with regards to the level of infrastructure and services offered.

Value-based assessment can be approached through two different methods: Capital Value<sup>17</sup> or Rental Value Approach (Bird and Slack, 2004, p.26). Through these methods, market value of each individual property is estimated. In the first case, Capital Value Approach, the market value is estimated commonly using three methods. First, Comparable Sales Method, estimates the capital (market) value of the property by analyzing the sales of similar properties. In second method, Depreciated Cost Method, the value of the property is estimated by calculating the value of land as if it were vacant and adding the production cost of the building. This method is generally used for newly built properties, for which there are no comparable properties that have been sold; therefore, this method is used when the first one cannot be used. The third method, Income Method, estimates the capital value by evaluating the gross annual income of a property that has actual rental income. These methods of property value assessment are used in OECD countries, as well as in Indonesia, Philipines, South Africa, Latvia, Mexico, Argentina and UK, which has applied a variation of this method, integrating valuation bands into its system (Bird and Slack, 2004, p.28).

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<sup>17</sup>Also referred to as Market Value

Differently from Income Method described above, the Rental Value Approach, evaluates the potential annual income generated by hypothetically renting the property and therefore calculates the rent of this property at its highest and best use (Bird and Slack, 2004, p.28,29).

Self-assessment is another method used in some countries to evaluate the value of property subject to taxation. According to Bird and Slack (2004), since this system relies considerably on the owners' will to declare the real market value of their property, it might compromise its effectiveness. However, in some cases, authorities have the right to buy the properties at the self-assessed value, as a measure to ensure that self-assessment is as realistic as possible. Nevertheless, considering the limited financial capacities of public authorities to engage in purchasing private property, there is still an ongoing tendency to underestimate the value of properties under this type of assessment (Bird and Slack, 2004, p.31, 32).

Where it is possible to use the capital value assessment approach, it is always preferable to do so, due to its higher accuracy in determining each individual property's value (Bird and Slack, 2004). Moreover, Bird and Slack (2004) suggest that the capital value approach has the advantage of correctly reflecting the level of services and infrastructure in an area; rather the area based approach is unlikely to do so as it is more generic in terms of reflecting the differences in the quality of several locations. For instance, in an area based assessment system, a bigger plot in the periphery might be charged a higher property tax than a smaller plot in the city centre, where the provided infrastructure and services contribute to a much higher market value of the latter. Consequently, Bird and Slack (2004) argued that an area-based approach results in greater burden of property tax imposed on lower income groups. Furthermore, such an approach does not reflect the changes in time in terms of public investments, which contributes to the increase in the real market value of some properties (Bird and Slack, 2004). While such a system facilitates the work for the local authorities, it creates discrepancies as it does not grasp the actual market value of each individual building, undermining the equality principle as well as property tax's value capture potential.

## *ii. Tax Rate*

The tax rate turns the assessed value of the tax base into a tax bill (Salm, 2017, p.30). There are several ways through which a tax rate can be established. Salm (2017) refers to three main approaches: the residual approach, the revenue maximising approach and the determination approach. The first one, the residual approach establishes the tax rate by estimating the total cost of investments required in specific locations, and then distributing it into the tax base through a tax rate. The revenue maximising approach, as suggested by the terminology, is a way of establishing the tax rate seeking to generate as much revenues as economically and politically acceptable. Whereas the determination approach reflects more the political will of the policy maker rather than any specific estimations in financial terms (Salm, 2017, p.30).

Regardless of the approach adapted by the public authority in charge of elaborating property tax policy, the tax rate can be either uniform or differentiated. Uniform tax rates apply the same rate to all types of property, regardless of their use, value, location or other characteristics. On the other hand, tax rate can be differentiated on several bases, such as regarding the services and benefits received from properties; on efficiency grounds, applying higher rates on those properties that are the least elastic in supply; or to achieve certain land use objectives, incentivising or discouraging certain uses, such as progressive taxation on vacant land (Bird

and Slack, 2004, p.37).Salm(2017) explains that in the realm of differentiated property taxes, progressive ones are favoured from an economic and social point of view, because they reflect the ability to pay of the taxpayers. On the other hand, regressive property tax, which diminish with the increase in property value, are mainly political acts, often triggered by well-connected property rich owners. Proportional rate taxation reflects some sort of middle ground, increasing proportionally with the property value regardless of the ability to pay (Salm, 2017, p.32).

As mentioned above, tax rate can be progressive also in time, when it serves as a tool to incentivize or discourage certain uses, especially when it is imposed on vacant land. Denaldi and Bruno Filho (2012) refer to such a practice in Brazil. As mentioned in Chapter 1, the improvement of the legal framework in Brazil, introduced by the Federal Constitution in 1988 and reinforced by the City Statute in 2001, entailed the provision of three instruments to guarantee the fulfilling of the social function of property, and therefore discourage real estate speculation<sup>18</sup>: compulsory subdivision, construction and utilization (PEUC), building and urban property tax rates that increase over time (IPTU progressive in time) and expropriation with payment in public bonds. IPTU progressive in time here refers to a tax rate applied to properties that do not fulfil their social function as defined by law, including vacant land, which is progressive in time, until the obligation of property utilization is carried out.

One of the most telling features of property taxation, is that in most countries the tax rate is very low. Even in contexts where progressive rates are implemented, such as the case of Argentina, the top rate rarely exceeds 1%. This factor, combined with a fragmented tax base, due to lack in capacities, databases but also due to several exemptions, followed by outdated fiscal cadastres, contribute to lower revenues generated from this tax and, most importantly for the focus of this study, they undermine the tax's potential as a land use policy instrument (Bird and Slack, 2004).

### *iii. Tax Governance and Administration*

Generally, property tax is considered to be a local tax (Bird and Slack, 2004). One of the reasons for this is that revenues generated from this tax are commonly used for financing services that are provided at a local level. These services and infrastructure provided at a local level benefits the real estate market in that locality and is capitalized in higher property values. Moreover, property tax is governed at a local level because immovable property, like the term suggests, is unable to shift location because of the tax. In other words, a change in a property tax by a local government would have a mild effect in terms of where people locate in the long run, as compared to the magnitude of the impact that income or sales taxes have(Bird and Slack, 2004). Nevertheless, in some cases such as in US, property tax that does not target only land but also buildings, can lead to market distortions, especially in housing, discouraging building and resulting in less capital per unit of land investments (Zodrow, 2001). A tax on land values alone can avoid such effects, as Henry George(1935) suggests, and as shall be discussed below. Finally, as discussed so far in this chapter, property tax can also be used as a land policy instruments and is therefore linked to urban planning and managing instruments that are typically designed and implemented locally. Therefore, its implementation at a local level of governance is necessary for its alignment with these other instruments.

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<sup>18</sup>Real estate speculation refers to speculation with land and building.

Property tax administration is one of the most fundamental aspects of it, as well as one of the weaknesses, due to its resource-intensive nature (Salm, 2017). Property administration is directly linked with crucial tasks such as tax base identification, property value assessment, evaluation of the amount of tax, billing/notification of the taxpayer as well as collection and enforcement (Salm, 2017).

Salm (2017) presents two methods generally used by local authorities to identify the tax base: self-declaration<sup>19</sup> or government inventory<sup>20</sup>. Whichever way is used to identify the tax base, the information collected is registered in a property tax cadaster. A well-functioning property cadaster should be composed from a legal cadaster and a fiscal cadaster. The first one should contain all the legal information related to the property, whereas the second one, which is the one that is mostly relevant for tax purposes, should contain information to ensure a correct tax assessment and facilitate the billing and collection process (Salm, 2017).

Another component of high importance is the updating of the cadastral information, which directly affects the property value assessment. Regardless of the method chosen to apply for property value assessment, as discussed above, the whole process can be jeopardized if the cadastral information is outdated. An efficient updating mechanism is a challenge in many developing countries (Bird and Slack, 2004). Although most local authorities lack the required administrative capabilities and infrastructure to make use of this tax as a revenue generating and urban policy making tool, larger cities usually performed better. This can be attributed to the fact that larger cities appear to have a better tax base and administration capabilities. Salm (2017) argues that bigger cities have more transparent real estate markets, which contributes to a tax base that is more accurate and is coherent with the real estate market. Salm (2017) refers to the case of the city of São Paulo to highlight the importance of updated cadastral information. São Paulo reformed the property tax system and updated the cadastral information in 2009, therefore IPTU (property tax) together with ISS (local service tax) are the most important own-revenue resources for São Paulo, making up 29% of the own revenues and 1.01% of the city's GDP in 2012 above developing countries ratio, which is around 0.6% of their GDP.

Billing and enforcement are also tax components that rely on the capabilities of the local government to administer the tax. Billing requires a clear definition of the ownership, since the owner/ occupier (as defined by law in each specific legislation) is liable for the property tax (2017). Also, a notification system should be in place, which informs the owners of their tax obligations. Regarding tax enforcement, Salm (2017) advocates for regulations that make taxpayers pay their fiscal debts by providing incentives, sanctions and penalties.

Consistency in tax enforcement is also critical. Property tax, such as taxing in general, have an important role in political agendas, especially during election periods. A study carried out with Brazilian municipalities during 1989–2005 period, shows that municipal deficits increase in election years, mostly because public expenditures rise and local tax revenues fall (Sakurai and Menezes-Filho, 2011). The same study suggests also that the political ideology of the mayor impacts the way the municipal budgets are administered. Therefore, political shifts at local level can have a direct impact on local taxes enforcement, including property tax, which can create horizontal inequalities between regular taxpayers and ‘free-riders’ (Salm, 2017).

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<sup>19</sup>In which case the tax base is identified through information provided by the taxpayers

<sup>20</sup>In which case the tax base is identified through information collected in the field by the taxing authority

### 2.3.4 Land tax vs. Improvements tax

Property tax components discussed so far are the tax design mechanism which can increase this tax's efficiency as a revenue generator and also as a land policy tool. While there is a general agreement when it comes to how tax efficiency is influenced by many of these components discussed in the sections above, one of the biggest dispute between scholars and policy makers remains related to tax base: What to tax? Or in other words, is a land tax or on improvements<sup>21</sup>, tax the right choice to achieve the required urban development goals and to contribute to fairness in property taxing system?

One of the main arguments of land tax proponents, is that land taxation will contribute to both the fairness and efficiency of property tax (Dye and England, 2010). While most taxes are inefficient because they distort the market, by affecting investment choices, land tax does not have this effect (Dye and England, 2010, Zodrow, 2001). Dye and England (2010) maintain that a land value tax does not impact the investment on land because, with small exceptions, land is fixed in supply and therefore is not affected by a tax on its value. This is not the case with a tax on improvements, which would affect the market, by discouraging investments on construction.

Another argument which was very popular amongst 19<sup>th</sup> century proponent of land value taxation was that the burden of this tax falls entirely on landowners, differently from a tax on improvements, the burden of which can be transferred to renters (Dye and England, 2010). Transferring the burden of the property tax to landowners was desirable in this period, given the context of the time, when land ownership was concentrated disproportionately on the hands of a rich minority. Nowadays, whether this result would contribute to a fair distribution of property tax burden in the society is debatable, considering that the patterns of land ownership versus building ownership are hard to calculate. Therefore, as Dye and England (2010) suggest, if the aim is to introduce progressive taxation, this can be achieved better with a personal income tax.

The debate on whether a land tax would encourage land development and would lead to increased efficiency in land use and discouraging of land speculation. This argument is central to this study and shall be discussed in detail in the last section of this Chapter.

One of the arguments discussed by opponents of land value taxation is the difficulty in distinguishing the value of improvements from the value of land. Referring to this argument, Henry George (1935) discusses that even when this is the case, hence in the cases in which invariably it is impossible to accurately separate the value of land from that of improvements, which would lead a land value tax to be imposed also on a portion of the value of improvements, it is still better than taxing all the improvements, with a tax on improvements.

Finally, one important question related to land value taxation is its capacity to generate the same amount of revenues as a tax on improvements. According to Dye and England (2010), in the case of Milwaukee all the land rent value would have to be taken away from the landowner through the tax, in order to raise as much revenues as generated from taxing improvements. Similarly, in Philadelphia more than 80% of land rent would have to be collected through the land tax in order to maintain the same amount of revenues generated when improvements are taxed as well. As a result, in those cities where land value taxation has been implemented, it

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<sup>21</sup>Improvements here refer to developments on land. Since this work is solely focused on urban land, improvements will refer to structures and buildings of any use (housing, office, industrial, etc) developed on urban land

has generally been introduced as a two-rate tax, in which land value is taxed at higher rates than improvements, but nevertheless, improvements are taxed as well (Dye and England, 2010).

## **2.4 Land value taxation and land speculation**

There is an ongoing debate on whether land value taxation can discourage land speculation. Drawing from his experience on Gainesway' subdivision in Kentucky, Archer (1973) concludes that one approach to correct the failures of land market and discourage land speculation is through land value taxation. Archer (1973) argues that land holders, or in other terms speculators, should not be granted property tax easements and exemptions, because the latter would reduce their overall costs of holding their land out of the market. Quite the contrary, he proposes an adoption of land value property tax system, which would increase the costs of withholding land, and would also serve as a tool to appropriate some of the "unearned increments" in land value, especially in the urban-fringe (Archer, 1973, p.371).

For Henry George(1935), if the land value tax would reflect as closely as possible the highest and best use of land, the owners who wish to withhold land without using it would be paying as much as what the land is worth to someone who wants to use it. According to him, land tax tends to increase production by discouraging speculation:

"Taxes on the value of land not only do not check production as do most other taxes, but they tend to increase production, by destroying speculative rent. How speculative rent check production may be seen not only in the valuable land withheld from use, but in the paroxysms of industrial depression...If land were taxed to anything near its rental value, no one could afford to hold land that he was not using, and, consequently, land not in use would be thrown open to those who would use it" (George, 1935, p.413).

Such an argument is disputed by some scholars of modern economic theory, who claim that land value tax has a neutral effect on the choosing between investing now or later on land(Dye and England, 2010). Based on the Pittsburgh experience, Oates and Schwab (1997) argue that land tax can be neutral with regards to timing of land development, considering two main assumptions. First, they assume that landowners withholding their land from development for speculative reasons, have sufficient access to credit to cover tax costs as long as their expected profit from land is greater than the opportunity cost of the money invested in land, which could have otherwise been used for another investment. Moreover, they argue that when the taxed land is valued at its "highest and best use", hence the most profitable land use as foreseen by zoning and/or other land use planning instruments, the tax value of this land will be the same despite the land being developed or not. When vacant land is taxed for its highest and best use value, the amount of tax is the same whether the land is developed or not, hence independent of the timing of its development, making its effect neutral in this respect. Because of these two main reasons, Oates and Schwab (1997) argue that a land taxation not necessarily discourages land speculation.

The Oates and Schwab's argument on the neutrality of a land value tax might hold true if the holder of land, the landowner that is withholding land from the market, will also be the developer of this land. In this case, his/her decision on whether to develop now or later might not be affected by the burden of the tax, because he/she will hold the burden of the tax on both cases (Dye and England, 2010). However, this is generally not the case. Moreover, even in the first case scenario, that the landowner is indeed also the developer of land, his/her decision will

depend on whether the rate of the tax is flat or progressive in time, such as is the case in some occasions as explained in the sections above.

It is worth noting that discussions regarding land value taxation and land speculation, whether they converge or diverge in proving the effect of the former on the latter, have one thing in common. They all refer to land value taxation where the tax base includes vacant land. This is an important element when land value taxation is to be used to induce a certain behaviour, such as to hasten land development and reduce speculation (Salm, 2017).

In practice, some central and local authorities have employed land value taxation as a tool to discourage land speculation. Such is the case of Brazil, where the fiscal constitution foresees the application of a progressive property tax on land and improvements (Salm, 2017, p.51). This progressive rate can reflect the economic capacity of the tax payer, reflecting the higher ability to pay as the value of property increases, as well as progressivity in time, which is foreseen to stimulate development and discourage land speculation (Salm, 2017, p.51). As Salm (2017) explains, the latter is a punitive instrument against immovable property, in the form of land or building, which does not fulfil the social function of property and is held speculatively out of the market or is underutilized. The Municipality of São Paulo approved their Strategic Master Plan in 2014, which paved the way for the implementation of this instrument. Moreover, the Municipality of São Paulo, has integrated two more instruments which together with the progressive land value taxation are utilized to discourage land speculation and fulfil the social function of property. Article 90 of Law no.16050<sup>22</sup> specifies that there are three instruments to be used to promote the utilization of vacant or under-utilized property, both land and building: 1- Compulsory Subdivision, Building and Use, 2- Urban Property and Land Tax and 3-Expropriation with payment through titles of public debt. How these instruments are applied and combined will be explained further on in this study.

## **2.5 Conceptual Framework**

The focus of this study is to research how land value taxation (Independent variable), and specifically IPTU in São Paulo, affects land speculation (Dependent variable) in the context of São Paulo. While exploring this direct relation is the scope of this study, there are two additional variables that have been identified through Literature Review as being influential too. The Municipality of São Paulo has adopted two other instruments, namely 1) Compulsory Subdivision, Building and Use (PEUC) and 2) Expropriation, as mechanisms to discourage land speculation and promote the social function of property<sup>23</sup>. The former (PEUC) is considered as a Mediating Variable, whereas the latter (Expropriation) is considered as a Moderating Variable.

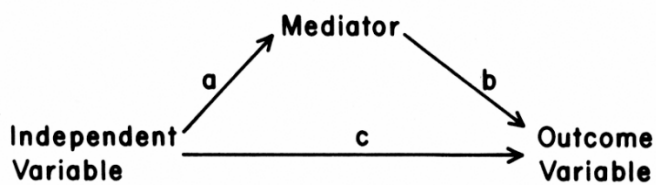
Since the application of IPTU progressive in time is always preceded by the notification for PEUC, this study considers the latter as a mediating variable. Woodworth's S-O-R model (Stimulus – Organism – Response) describes the Mediating variable, as an element that intervenes in the relation between the Independent and Dependent Variables (Baron and Kenny, 1986).

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<sup>22</sup>On 31 July 2014, Approves of the Development Strategy and the Strategic Master Plan of the Municipality of São Paulo, and repeals Law no. 13430/2002.

<sup>23</sup> Article 90 of Law no.16050



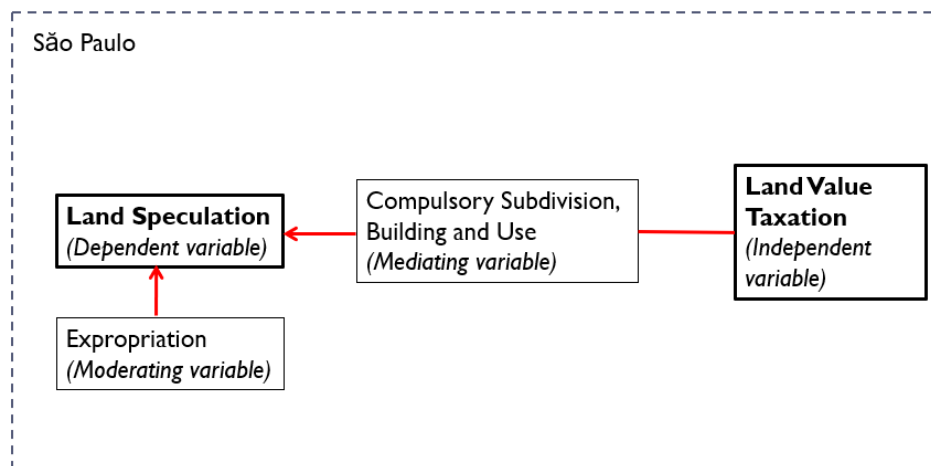


**Figure 4** Role of Mediator Variable (source: (Baron and Kenny, 1986, p.1176)

Moderating variables are defined as:

In general terms, a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable (Baron and Kenny, 1986, p.1174).

Differently from PEUC, expropriation does not precede the application of IPTU progressive in time; on the contrary it follows it in case of non-compliance with PEUC and IPTU progressive. Therefore, the presence of such an instrument might influence the behaviour of speculators, and hence moderate the dependent variable. For this reason, expropriation is considered as a Moderating variable. Both Mediating and Moderating variables will be measured and their impact on the dependent variable shall be isolated as much as possible.



## Chapter 3: Research Design and Methods

### 3.1 Revised research question(s)

Literature review covered so far has contributed to a broader understanding of land markets and the timing of land development with a focus on land speculation. Conclusively, one of the main challenges faced by public authorities designing land management tools, such as the land value taxation, is identifying speculative behaviour in land. Furthermore, identifying the elements which make a land value tax an adequate tool for land policy, and specifically for discouraging land speculation, is very important. Thus, the research question and relevant sub-questions are as follows:

*How does land value taxation, and specifically IPTU progressive in time in São Paulo, affect land speculation?*

- How is land speculation manifested in a megacity such as São Paulo?
- How efficient has been the implementation of IPTU progressive in time in São Paulo during 2014-2018?

In this research, the independent variable is Land value taxation, specifically IPTU progressive in time, whereas the dependent variable is land speculation. The relation between the independent and dependent variables will be investigated in the context of the Municipality of São Paulo, as is specified in the Scope of the study, and will further be elaborated in-depth under Sample size and selection.

### 3.2 Research objective, strategy and methodology

The research objective of this study, as specified in Chapter 1, is to investigate how land value taxation, focusing on IPTU progressive in time in São Paulo, affects land speculation. The research strategy adopted for this study is that of a mixed method, with Desk Research being the primary source of data, backed up by interviews and in-site observations. One of the reasons for choosing this research strategy is because utilizing existing data sources is a suitable way of studying phenomena that cannot be observed directly in people's behaviors (Van Thiel, 2014), such as the case of land value property tax, and specifically IPTU progressive in time in São Paulo. The existing body of information available in legislative and policy documents, together with existing and accessible online databases, allow for a thorough research of this subject in the context of São Paulo. Moreover, considering the wide range of the target population studied (notified vacant land, as will be explained in the section "Sample size and selection"), as well as the quantity and variety of the variables measured, Desk Research makes the study more comprehensive and efficient. The main drawback of this strategy is the operationalization, due to the fact that data collected through Desk Research might not be in the format most suitable to the variables and indicators desired to be measured. This challenge has been overcome as explained below.

The main type of data used for this study is primary data<sup>24</sup> collected through desk research, mostly focusing on legislation, policy documents, annual reports and existing databases. More specifically, the research draws information from legislation regarding instruments that induce the social function of property, such as the legislation regarding IPTU progressive in time, policy documents, such as the Strategic Masterplan of São Paulo ( Law 16.050 / 2014 ), as well as existing databases, the most important of which is the “List of notified properties due to noncompliance with the Social Function of Property” , but also Annual reports, Work Plans 2014-2018, and “Geosampa”, the geographical database of the Municipality of São Paulo<sup>25</sup>; all of which are accessible through the website of the Municipality of São Paulo. This information has not been produced for research reasons, and hence disaggregated data that can be used to calculate the indicators identified in this research study.

Moreover, as stated in the beginning, data deriving from Desk Research is triangulated with data drawn from interviews and observations on-site<sup>26</sup> in order to increase the reliability and validity of data collected. Interviews have been conducted with experts working closely with IPTU progressive in time in the Municipality of São Paulo, academics and researchers that have researched and written about property tax as a land management instrument, especially for the context of Brazil and tax lawyers. Observation in the area of study has provided the most updated information regarding the development pace of the properties that have been notified due to non-compliance with the Social Function of Property and that are currently subject of the IPTU progressive in time. Further detail on the research methodology is provided in the sections “Data collection methods” and “Data analysis methods” below.

**Table 1**List of interviewed experts<sup>27</sup>

Interviewee	Profession	Relation to the research subject
Interviewee 1	Lawyer	* Formerly involved directly with the implementation of PEUC and IPTU progressive in time in the Municipality of São Paulo
Interviewee 2	Urban Sociologist	* Formerly involved directly with the implementation of PEUC and IPTU progressive in time in the Municipality of São Paulo
Interviewee 3	Real Estate Economist	*Currently involved directly with the implementation of PEUC and IPTU progressive in time in the Municipality of São Paulo
Interviewee 4	Urban Planner	* Formerly involved directly with the implementation of PEUC and IPTU progressive in time in the Municipality of São Paulo * Researched the subject of immovable property speculation and

<sup>24</sup>As defined by Van Thiel (2014) primary data refers to information that has not been produced for research reasons, such as annual reports, legislation and policies, even though this data might not have been collected by the researcher him/herself.

<sup>25</sup> Municipality of Sao Paulo, Geosampa: Digital Map of the City of Sao Paulo. Available at: [http://geosampa.prefeitura.sp.gov.br/PaginasPublicas/\\_SBC.aspx](http://geosampa.prefeitura.sp.gov.br/PaginasPublicas/_SBC.aspx) [Accessed 2018].

<sup>26</sup>Observations and interviews took place in Sao Paulo, during a field trip visit in July-August 2018.

<sup>27</sup> To protect the anonymity of the interviewed experts, their identity is not revealed in this study. However, the researcher has documented these interviews in her research logbook.

		the use of Instruments to promote the Social Function of Property in São Paulo
Interviewee 5	Architect/ Urbanist	* Public official at the Secretary of Urbanism of Municipality of SP
Interviewee 6	Economist	* Professor/ Researcher of the subject of Land Value Capture Instruments, including property taxes
Interviewee 7	Architect/ Urbanist	* Professor/Lecturer of Urban and Regional Development subjects at Federal University of ABC
Interviewee 8	Tax Lawyer	* Expert in legislation regarding taxing in Brazil

In some occasions, this study has used secondary data, hence data that has derived from previous studies. In such cases, when these data did not fit the indicators aimed to be measured in this study, the researcher has accessed the original source of the data or has contacted the author of the research study and has been able to obtain further clarifications, to increase the validity and reliability of this information.

### 3.3 Sample size and selection

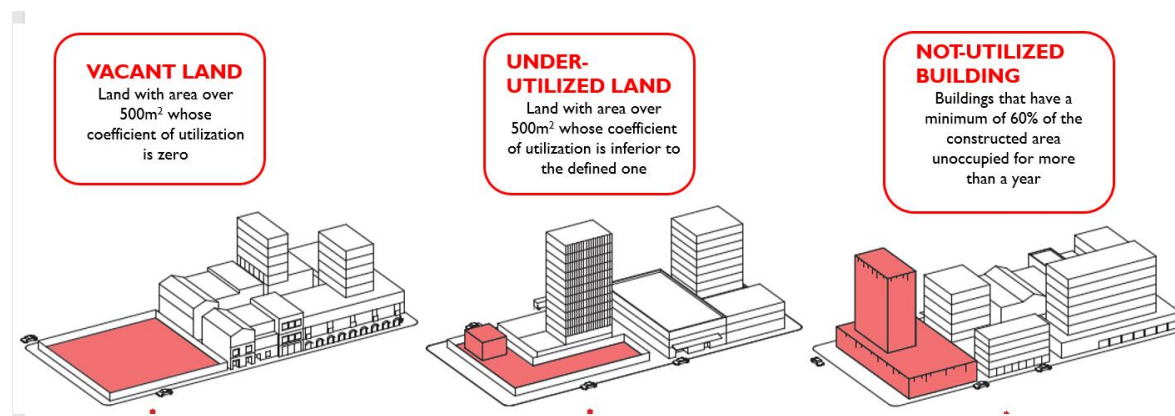
The *Imposto sobre a Propriedade Predial e Territorial Urbana* (IPTU) progressive in time is one of the three instruments used by the Municipality of São Paulo to encourage the fulfilment of the Social Function of the property, as explained in Chapter 2. This tax is imposed based on the value of property, including land, hence it is in itself a land value tax. Moreover, the base of this tax includes vacant land, and its rate becomes progressive in the cases of identified vacant land, in other words land that does not fulfil the Social Function of property, as will be explained further in detail in Chapter 4.

Moreover, the subject of this tax is vacant land larger than 500m<sup>2</sup>, as well as two or more adjacent plots of vacant land smaller than 500m<sup>2</sup> owned by the same owner. Vacant land subject to this tax should be urban land and serviced with infrastructure. The Municipality of São Paulo, which is the sample studied in this research as shall be further explained, has identified several areas in the city where IPTU progressive in time can be used as an instrument to promote the social function of property. These areas encompass perimeters of urban transformation projects and urban expansion areas, where prices of real estate market are expected to increase, or areas where due to specific urban regulation policies, the highest and best use of land cannot be achieved and therefore landowners keep their land idle waiting for land use policy changes. This methodology adopted by the Municipality of São Paulo to identify Vacant Land that does not fulfil its Social Function is similar to "scale of operation" approach adopted by Widdis to study land speculation in Ontario and is in line with what is defined as land speculation in this study.

This study focuses in the Municipality of São Paulo as the largest city in Brazil which accounts for 11.4% of the country's GDP and 5.9% of its population (Salm, 2017). As mentioned earlier, according to Denaldi, Brajato et al. (2017) by the end of 2014 only 8 Municipalities are implementing the instruments to promote the social function of property, which include IPTU progressive in time; one of which is the Municipality of São Paulo. Among these municipalities, 3 of them interrupted the process and 2 of them resumed the process after a break. The ones that carried on an uninterrupted process were Maringa, Sao Bernardo do

Campo and São Paulo which started the process in the year when the survey conducted by Denaldi, Brajato et al. (2017) was carried out, 2014. São Paulo is the most significant case amongst these municipalities, given its size and economic importance in national terms and beyond. Also, one of the sub-questions of this research refers to the phenomenon of land speculation in megacities, making again São Paulo a more suited study case. Moreover, São Paulo cadastre was updated very recently, in 2009, as compared to other megacities, such as Rio de Janeiro, whose cadastre dates back to 1997 (Salm, 2017).

The municipality of São Paulo has identified three types of properties that do not comply with the principles of the Social Function of Property: Vacant land, Under-utilized land and Not-utilized buildings.



**Figure 5** Types of properties that do not comply with the Social Function of Property in São Paulo (Source: Strategic Master Plan of São Paulo (Law 16.050 / 2014))

For the time period 2014-2018, the Municipality of São Paulo has notified 1385 properties which do not comply with the Social Function of Property, which are subject of Compulsory Subdivision, Building and Use as well as to the IPTU progressive in time, as will be explained in detail in Chapter 4. From all the notifications, 198 notifications are no longer active, due to compliance with regulations (100<sup>28</sup>), deferred as a result of impugnation or recourse (93) and revoked as a result of a court decision (5). Currently there are 1187 active notifications. While selecting the sample size, not utilized buildings were omitted from consideration, given that they diverge from the scope of the study.

Acknowledging the fact that under-utilized land may constitute one form of land speculation, it was consciously decided to not include this category in the target population, given the time and resource restrictions of the study. However, general considerations regarding these cases are presented, but further research is needed in the future, to complement this study with this category of land speculation. Hence the focus remained on the areas that contained notified vacant land, which constitutes 38.5 % of all notifications. Thus, the sample under investigation consists of properties identified and notified under the category “vacant land”, in total 457 notifications in the Municipality of São Paulo.

<sup>28</sup> All of them refer to Not-utilized building category, that started utilization after being notified. Therefore they are not analysed in this study

### **3.4 Data collection methods**

Empirical research has been conducted for both qualitative and quantitative data, in order to have a full-fledged understanding of the situation. Quantitative data provides grounds for statistical analyses, which can serve to test correlations between variables (Van Thiel, 2014). The main source for this kind of data are existing databases in the Municipality of São Paulo, which can be accessed online. Qualitative data has also been accessed through these databases, and complemented with information acquired from existing legislation, regulatory and policy documents, other official documents, interviews and observations. Secondary data collected through existing studies has also been used to complement the body of information required to estimate the identified indicators and variables.

Most of the information required for variable analyses, was collected through desk research, making use of online platforms and resources, Geomap and Google Earth, as well as local libraries. Information such as the level and type of land speculation, measured in accordance to the indicators provided in the Operationalization section, can be calculated using the municipal database “List of notified properties due to noncompliance with the Social Function of Property” as well as the Geomap platform “Geosampa”, both of which are accessible online. Similarly, information regarding the IPTU tax base, tax rate and tax governance can also be accessed through legal and administrative documents.

Interviews and observations on the site have provided qualitative data. In some cases, quantification leads to over simplification of information and as a result it cannot tell the whole story (Van Thiel, 2014). For example, if a correlation between certain indicators of the independent variable, IPTU progressive in time and certain indicators of the dependent variable, land speculation can be proven statistically, the underlying reasons behind such a correlation have been explored through qualitative data. This provides with a broader picture of such a correlation, or in its absence, provides with information about why this correlation does not exist. The selected interviewees are experts in this subject of research through either: direct experience with implementing the IPTU progressive in time in the Municipality of São Paulo, direct support to the implementing group, research experience on the subject area or thorough knowledge on the legal framework that regulates these instruments. The conducted interviews were semi-structured, allowing a degree of flexibility to the researcher to explore more on information that was newly introduced during the interview. All the interviews have been recorded, documented in the research logbook and coded for further analyses. Whenever possible, information obtained through interviews has been double checked with official sources, such as legislation, Municipal database and Municipal reports.

All sources of information have been selected carefully, verifying that they are the official ones or, in case of secondary data collected through existing studies, verifying if they are elaborated by nationally recognized research institutes or researchers that are specialized in the topic of this research. Whenever possible, the validity of the information has been triangulated by different sources, to minimize the possibility of biases. Given that most of the data collected and analysed is official and public, as well as disaggregated, such a risk is minimal.

### **3.5 Data analysis methods**

After filtering, the relevant data has been organized to facilitate the calculation of the indicators. The initial data organization, coding and preliminary descriptive statistics, have been carried out using Excel. To answer the first sub-question linked with land speculation, statistical analyses has been combined with qualitative information from interviews and observations. Also, information from Geosampa has been utilized for obtaining more in-depth knowledge for some indicators. The development history of the city has been analysed more in depth through several official documents. This understanding has enriched the research, especially when it comes to understanding the different patterns of land speculation.

Similarly, descriptive statistical analyses have been employed for answering the second sub-question. For the second sub-question and for the main research question, correlation analyses have been conducted as well. Given that the majority of indicators are nominal, cross-tabulation is generally used to examine the relationship between them. Using SPSS, Chi Square tests-of-independence has been used to determine the correlation between nominal indicators.

However descriptive statistical analyses would not suffice. Some information collected through interviews has been coded and analysed through SPSS as explained above. Also, in-depth interpretation of some qualitative data collected from interviews, has complemented the research and the statistical findings.

### **3.6 Operationalization: variables, indicators**

The operationalization of variables and indicators has been based on the findings of Literature Review presented in Chapter 2 on land speculation and the land value tax, specifically IPTU progressive in time, in the Municipality of São Paulo. From literature review, two main concepts have been identified, namely Land Speculation and Land Value Tax, that correspond to the Dependent and Independent Variable respectively.

#### **Land speculation**

Literature on speculation reviewed so far suggests that a simple definition of land speculation is difficult to be formulated. However, the most encompassing definition of land speculation, which this study also refers to, is the following:

“Speculation involves the assumption of a business risk in hopes of procuring gain. It is most often associated with the act of buying and selling in expectation of achieving a profit. On this basis, the individual speculator is defined as a person who acquires and holds land for the express purpose of selling part or all of it at a later date for a profit.”

(Widdis, 1979, p.338)

In this definition, the term “selling” will also be complemented by “developing” it, as has been argued by various authors covered in Literature Review. There are 5 variables that have been identified to evaluate Land Speculation. These variables refer to concepts introduced from various authors such as Alonso, Shoup, Triantafyllopoulos, Widdis and Mills, as well as the Master Plan of São Paulo which is the policy regulation document in charge of addressing land speculation in this city. Since land speculation is very context related, indicators to measure the identified variables have been based in local policy and legislation in place in São Paulo. Further details are given in the footnotes.

## Land Value Tax

In Chapter 2, land value taxation has been defined as follows:

*"Land value tax is a variant of the property tax that imposes a higher tax rate on land than on improvements, or taxes only land value" (Dye and England, 2010, p2).*

Also, literature review findings suggest that there are three main components of a Land Value Tax, which has been referred to for three variables in the operationalization table: Tax Base, Tax rate and Tax governance and administration (Salm, 2017, Bird and Slack, 2004, Dye and England, 2010). All the relevant indicators of these variables have been identified from this body of literature as well.

Additionally, referring to Denaldi and Bruno Filho (2012) and Denaldi, Brajato et al.(2017), the policy regulations for the application of IPTU progressive in time in São Paulo have been introduced in Chapter 2. Accordingly, it has been established that the effect of the independent variable, IPTU progressive in time on land speculation in São Paulo should be measured through a moderating variable, compulsory subdivision, construction and utilization (PEUC). Therefore, this variable has been included as well in the operationalization table.

The operationalization table also includes the Moderating variable: Expropriation. This variable will be measured and its impact on the Dependent Variable will be isolated in order to minimize its role on the relationship between Independent Variable (IPTU progressive in time) and Dependent Variable (Land Speculation)

The indicators used to measure the moderating and mediating variables have been identified in the legal framework regulating PEUC and IPTU progressive in time, and Expropriation, which has been introduced in Chapter 2 and shall be presented in detail in Chapter 4.



Concept	Variable	Indicator	Explanation of indicator	Value	Data type	Data collection method	Data source
Land speculation	Size of plot <sup>29</sup>	Mean surface area of plot	What is the mean surface area of the notified vacant plot?	Number	Scale	Desk Research	Municipal database
		Mode surface area of plot	What is the mode surface area of the notified vacant plot?	Number	Scale	Desk Research	Municipal database
	Type of land speculation <sup>30</sup>	Type of land vacancy	Is the notified plot subject to first generation or second-generation land speculation?	1-Completely Vacant Land 2-Underutilized Vacant Land <sup>30</sup>	Nominal	Desk Research	Municipal database
	Spatial distribution <sup>31</sup>	Location in Sub-municipalities <sup>30</sup>	Where is the notified vacant land located?	Sub-municipality name	Nominal	Desk Research	Municipal database/ Geomap
		Location in specific areas of land regulation <sup>30</sup>	What type of land regulation zone is the notified plot located in?	1- EETU Santo Amaro 2-UO Center 3-UO Agua Branca 4-Sub-Munic Mooca 5-Sub-Munic Se 6-Zeis 2 7-Zeis 3 8-Zeis 5 <sup>30</sup>	Nominal	Desk Research	Municipal database/ Geomap

<sup>29</sup> Based on "Land Speculation and Property Market (In)efficiency), Triantafyllopoulos, 2010, methodology and on "Motivation and Scale: a Method of Identifying Land Speculators in Upper Canada", Widdis, 1979

<sup>30</sup> Based on the Masterplan of the Municipality of Sao Paulo, 2014

<sup>31</sup> Based on "Location and Land Use. Toward a general theory of Land Rent", Alonso, 1964

	Provisional land use <sup>32</sup>	Type of provisional land use	What type of land use does the vacant land have?	1- Service for collective residence 2-Service for commercial unit 3-Service for comm. And res. Unit 4-Cortico 5-Service for Hotel 6-Service for Industry 7-Service for offices 8-Parking 9-Service for residential 10-Sport club 11- No provisional use 12- Warehouse <sup>33</sup>	Nominal	Mixed method	Geomap and observation
	Landowner <sup>34</sup>	Type of landowner	Who are the landowners that own the vacant land notified so far?	1-Individuals 2-Real estate/development companies 3-Construction companies 4-Other types of companies 5-Public enterprises 6-Religious Entities 7-Organizations 8-Other <sup>33</sup>	Nominal	Desk Research	Municipal database

<sup>32</sup> Based on “The optimal timing of urban land development”, Shoup, 1970

<sup>33</sup> Categories derived from Geosampa (Municipality of Sao Paulo online platform)

<sup>34</sup> Based on “Market Power and Land Development Timing”, Mills, 1980

Concept	Variable	Indicator	Explanation of indicator	Value	Data type	Data collection method	Data source
Land value tax - IPTU progressive in time	Tax base <sup>35</sup>	Assessed base <sup>35</sup>	What is the ratio between the value of assessed base and market values of property?	%	Scale	Desk Research	Legislation Municipal Documents
		Type of exemptions <sup>35</sup>	What types of properties are exempted from the land value tax?	Not applicable	Nominal	Desk Research	Legislation Municipal Documents
		Taxing of vacant land <sup>35</sup>	Is vacant land taxed?	Yes, No	Nominal	Desk Research	Legislation
	Tax rate <sup>35</sup>	Amount of tax rate <sup>35</sup>	What is the tax rate?	%	Scale	Desk Research	Legislation
		Type of rate (Flat, progressive) <sup>35</sup>	What type of tax rate is applied on vacant land?	1-Progressive (over time) 2-Progressive (ability to pay) 3-Flat	Nominal	Desk Research	Legislation
	Tax governance <sup>35</sup>	Frequency of Fiscal Cadastre updating <sup>35</sup>	What is the frequency of property value reassessment?	Not applicable	Nominal	Mixed method	Legislation Interview
		Identification of tax base <sup>35</sup>	How is the tax base identified?	Not applicable	Nominal	Mixed method	Legislation Interview
		Notifications <sup>35</sup>	How is notification carried out?	Not applicable	Nominal	Mixed method	Legislation Interview
		Consistency of enforcement <sup>35</sup>	Has the tax been enforced consistently during the study period 2014-2018?	Not applicable	Nominal	Mixed method	Municipal database Interview
			Rate of billing of the tax?	%	Scale	Desk Research	Municipal database

<sup>35</sup> Based on “Property Tax in BRICS Megacities; Local Government Financing and Financial Sustainability”, Salm, 2017, “Assessing the Theory and Practice of Land Value Taxation”, Dye and England, 2010, the International Handbook of Land and Property Taxation, edited by Bird and Slack, 2004

	Compliance with PEUC <sup>36</sup>	Application for building permit <sup>36</sup>	What is the number of applications for building permit?	Number	Scale	Desk Research	Municipal database
		Rate of application for building permits <sup>36</sup>	What is the ratio between number of applications for building permits and number of notifications?	%	Scale	Desk Research	Municipal database
		Approval for building permit <sup>36</sup>	What is the number of building permit approvals?	Number	Scale	Desk Research	Municipal database

Expropriation	Application <sup>36</sup>	Notification	How is the notification done?	Not applicable	Nominal	Mixed method	Legislation Interview
	Enforcement <sup>36</sup>	Mechanism	What is the enforcement mechanism?	Not applicable	Nominal	Desk Research	Legislation Municipal Documents

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<sup>36</sup> Based on the Federal Constitution of Brazil 1988, City Statute 2001 and the Masterplan of the Municipality of Sao Paulo

### 3.7 Reflection on validity and reliability

- Reliability

Reliability of a study reveals whether the study is free of measurement errors. Therefore, reliability indicates the degree to which the study can be replicated using the same methodology and achieving the same results. The reliability of the study relies on the accuracy and the consistency with which variables are measured.

- Accuracy

To ensure accuracy, sources are considered carefully, so that there is no bias or external interference to what is sought to be measured. This study refers only to official data accessed either directly from the Municipality of São Paulo, or through their official online platform. In some instances, data collected did not provide all the necessary information for a clear analysis. In such cases, the data was interpreted in the way that it would be minimally invasive to the final results. For instance: there is no information whether the notified vacant land, which had applied for a building permit before being notified (before 2014) have updated/refreshed these applications or not. In this case, only the ones who received a building permit approval were considered as compliant with the tax. This hypothesis has been presented clearly in Chapter 4 and the relevant calculations have been done following this hypothesis. If the hypothesis is wrong, meaning if these notified owners have updated/refreshed their previous applications, the percentage of compliance with the tax would be higher. A higher result would only reinforce the findings of this research and would not compromise the conclusions of this study.

- Consistency

However, consistency is harder to achieve, as it relies on the idea of replicability (Van Thiel, 2014). This study covers the whole period during which IPTU is being applied on vacant land in São Paulo, hence the period 2014-2018. The main database feeding the analyses of this study is updated yearly by the Municipality of São Paulo, using the same measurements. Therefore, data has been collected consistently for the period under investigation.

- Validity

There are two main types of validity that will be addressed here: internal validity and external validity. Internal validity refers to whether what was supposed to be measured has been measured correctly. This relates to correct operationalization as well as to succeeding in proving that there exists a correlation between independent and dependent variables. Internal validity is highly linked with the concept of reliability. While internal validity refers to whether the correct variables and indicators have been identified, the next step is to accurately and consistently measure these indicators, achieving reliability. External validity describes the extent to which the study can be generalized. Considerations about both internal and external validity are presented below.

- Internal validity

The operationalization in this study relies entirely on variables derived from literature review. Such variables have been translated into indicators by either referring again to literature review,

or to specific standards specified in the Brazilian legislation or local regulatory documents. Moreover, a direct link between independent and dependent variable has been sought to be achieved by optimizing the selection of the study sample. As explained in the relevant section, the selection of the study sample satisfies the characteristics of what is considered land speculation in this study. Furthermore, the instrument used in the case selected is IPTU progressive in time, which is one type of land value taxation. Therefore, the selected sample increases the internal validity of the study. Additionally, such a selection has been guided by the quest to isolate as much as possible the independent and dependent variables, by acknowledging the presence of and measuring the impact of Mediating and Moderating Variables.

The main disadvantage of using existing data sources through Desk research is the possibility that such data might not comply with the identified indicators during operationalization (Van Thiel, 2014). As the information gathered for producing these datasets has served a purpose different from that of this research, matching this data poses a challenge. To overcome this obstacle, as mentioned previously in Data collection and analyses methods sections, information has been gathered disaggregated in their principal source.

Another crucial element regarding internal validity, is related to the existing context (Van Thiel, 2014). Some of the information gathered, especially qualitative data, has been gathered from the Municipality of São Paulo. Given that this research seeks to test a policy designed by this Municipality, there might be a conflict of interest in terms of reliability to the information gathered, especially during interviews with representatives of the Municipality. In this case, interviews have been structured such as to validate from different angles the same argument, and the information has been triangulated using different sources.

Progressive IPTU is a fairly new policy, the implementation of which has started in 2014. Hence four years is considered generally as a short time period to test the success of a public policy, which might compromise the internal validity of the study. However, notifications regarding the Compulsory Subdivision, Construction and Utilization as well as progressive IPTU give a time period of 5 years to the property owners to comply with these regulations, during which the owner is required to submit a project proposal within the first year of receiving the notification and is required to start the construction of the vacant land within the second year of the notification. Hence, it is possible to measure the impact of this policy for all properties that have been notified before 2017.

Another factor that might compromise the internal validity of the study is the fact that the Compulsory Subdivision, Construction and Utilization as well as progressive IPTU, are also accompanied by the threat of expropriation for the owners who fail to comply to these requirements within the 5 year time period granted to them. Thus it can be argued that it is difficult to isolate the impact of IPTU on land speculation, while it is associated also to another instrument, namely expropriation. Qualitative data gathering through interviews and legislation will seek to explore whether expropriation is a real possibility in the case of São Paulo, given the amount of properties that have been notified so far and the administrative and budgetary implications that such a measure presents and hence whether expropriation really was influential in the behaviour of speculating land owners?.

- External validity

One of the main challenges when it comes to external validity, is overcoming the contextual implications that IPTU represents. Considering its scale, the city of São Paulo is very representative context also for other megacities in Brazil and Latin America. Moreover, given

that PEUC/IPTU progressive in time are instruments that are regulated by the federal legislation in Brazil, findings of this study could be also generalized for other big cities in the region or overall in the country. Wider generalizations might not be able to be drawn directly, however they will contribute to the existing body of research related to this topic and to future academic debates.

## **Chapter 4: Research Findings**

Literature covered so far suggests that understanding land speculation requires a good understanding on the urbanization process and land markets. Land Rent Theory and Contemporary Urban Location Theory give a theoretical perspective and set the stage on which land speculation can be observed and studied. Moreover, literature on land speculation in different cities, such as the case of Ontario (Widdis, 1979), Rhodes (Triantafyllopoulos, 2010) and the like presented in Chapter 2, has highlighted the importance on understanding the urbanization process and land market in a specific context of a city, to comprehend how land speculation operates in that context. Therefore, this chapter starts with a general panorama of the urbanization process and land market in São Paulo, using concepts derived from Land Rent Theory and Contemporary Urban Location Theory. Afterwards, land speculation in this context has been measured and explained, through the variables and indicators presented in Chapter 3. This part answers sub-question 1.

The second part of this chapter is dedicated to land value taxation and specifically IPTU progressive in time. An overall introduction on property tax in São Paulo is given, as a starting point in understanding the nature of IPTU progressive within the context of property tax. Then, findings regarding the components of land value tax are presented, based on measurements variables and indicators identified in Chapter 3. This part answers sub-question 2.

Finally, findings regarding the impact of the IPTU progressive in time in land speculation are presented and interpreted. These findings, together with the ones presented in the first and second part, support answering the Main Research Question.

### **4.1.Land speculation in São Paulo – Measuring the dependent variable**

#### **4.1.1. The urbanization process and land market in São Paulo**

From the beginning of the 20<sup>th</sup> century until the early '30s, the downtown area of São Paulo was the elegant part of the city, adapting elements of European landscape and architecture (Un-habitat, 2010). After the approval of the Plan of Avenues, plan proposed a radial city structure, with large avenues emerging from the city centre to the outskirts, the city centre was transformed. It was after the '50s that this part of the city was equated with urban decay, while some commercial enterprises and services were moving towards the south-western areas outside the city centre (Un-habitat, 2010). This period is associated with real estate development in new neighbourhoods of the city, such as Higienópolis, Campos Elísios and Avenida Paulista, driven by the demand of wealthier classes for healthier areas to live, distant from the city centre (Caldeira, 2000).

In the meantime, as Caldeira (2000) explains, industrialists seeking to increase the disposable income of the larger population, positively affecting their ability to buy goods, were lobbying for policies that supported cutting housing expenses for the middle class and the poor, through rent control and increasing homeownership policies. In 1941 “Lei do Inquilinato” (renter’s law) was approved, which froze renting prices at the level they were in the year of its approval for a period of more than 20 years – 1941 until 1964. This had an immediate effect in tightening of the housing rental market in São Paulo, resulting in insufficient rental spaces and movement of the working force to the periphery, where they could afford to buy. Land speculators took



advantage of this situation by selling land plots fraudulently or non-compliant to plot size and other regulations (Caldeira, 2000).

Sandroni (2004) suggests, '50s – '80s introduced a spatial specialization, with industrial sites moving from their locations to more peripheral ones, due to increases in land prices of their original locations, increased environmental requirements as well as, because of demands for larger plots to accommodate new technologies and expand production. In the 1990s, the traditional city centre of São Paulo was no longer a viable option for new constructions, due to absence of free land or small plot sizes which were not suitable for constructions with advanced technology and architectural models that were fancied by entrepreneurs during this period. Moreover, the new city centre along Avenida Paulista was becoming saturated. Therefore, new business activities concentrated in other areas of the city, forming new centralities, such as such as Faria Lima, the region near Marginal Pinheiros and av. Luis Carlos Berrini. As a result, the prices of real estate for sale or rent in the traditional city centre decreased. This economic decline was followed by a social one, with increasing violence and delinquency becoming a major issue in the traditional city centre (Sandroni, 2004).

Changing in location preferences from the industries, businesses and higher income residential areas in the city of São Paulo as described so far, reflects the concepts of Contemporary Urban Location Theory described by Balchin and Isaac (2003) in Chapter 2. It is through this lens that we can begin to understand the formation of an idle stock of real estate in the decaying traditional city centre and the boosting of land markets in the new centralities created. This introduction also facilitates the understanding of expectations of landowners in other areas in the city where these business areas and high-income residences could be expanded.

#### **4.1.2. How is land speculation manifested in a megacity such as São Paulo?**

##### **4.1.2.1. Legislation**

Following the Federal Constitution of 1988 and the City statute of 2001, the Municipality of São Paulo approved a new Masterplan in 2014. This new Masterplan includes the three instruments to promote the social function of property, and discourage real estate speculation: compulsory subdivision, construction and utilization (PEUC), building and urban property tax rates that increase over time (IPTU progressive in time) and Expropriation with payment in public bonds. As explained in Chapter 3, properties that do not fulfil their social function fall under one of three categories: Vacant land, Under-utilized land and Non-utilized building.

According to this Masterplan, properties identified by the Municipality as non-compliant with their social function are notified for Compulsory subdivision, construction and utilization (PEUC). After receiving this notification, they have one-year time to fulfil their obligation of: Applying for a building permit in the case of Vacant land and Under-utilized land and to provide proof of Utilization of the building, in the case of Non-utilized buildings. If they fail to comply with this timeline they become subject of IPTU progressive in time.

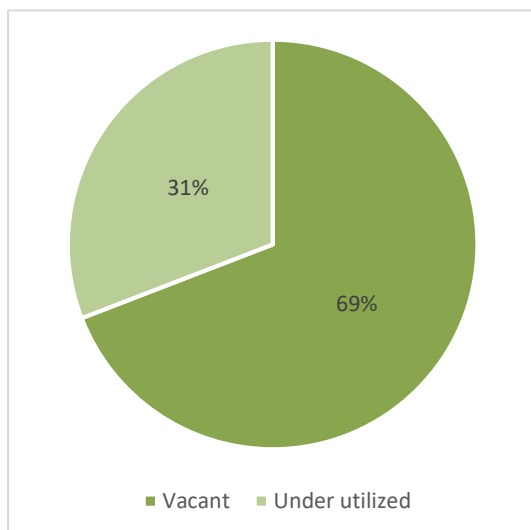
In the case of Vacant land and Under-utilized land, after receiving an approved building permit from the Municipality, they have two years-time to start the construction works and five years-time after that to finish the construction works. If they fail to comply with either one of these deadlines they become subject of IPTU progressive in time.

After 5 years of applying IPTU progressive in time, if the property still has not complied with their obligations, then the Municipality can expropriate it and compensate the owner with payments in public bonds.

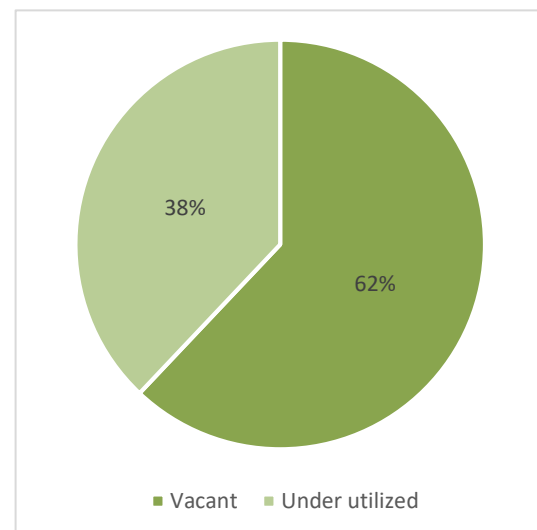
#### 4.1.2.2. Type of land speculation

The Municipality of São Paulo started their notifications of properties non-compliant with the social function of property in November 2014. According to the “List of properties notified due to noncompliance with the Social Function of Property”, published online and updated by the Municipality of São Paulo periodically, until August 2018, 1,385 properties were notified. (Municipality of São Paulo, 2018). From all 1,385 notifications, 198 notifications are no longer active, for reasons that shall be presented later. Therefore, currently there are 1,187 active notifications. Amongst these notifications, 38,5% are for Vacant Land, 17,1% are for Under-utilized land and the rest, 44,3% are for Not-utilized buildings. Therefore, 55.6% of the overall notifications refer to land, either Vacant or Under-utilized.

The graphs below show the distribution of the number of notifications and the overall area of land notified under the two types of identified land speculation: Vacant land and Under-utilized land:



**Chart 1** Ratio of the number of notifications for Two types of land non-compliant to social function of property ((Source: Municipality Database, chart elaborated by the author)



**Chart 2** Ratio of the area of notified land for Two types of land non-compliant to social function of property (Source: Municipality Database, chart elaborated by the author)

Although the majority of notifications were focused on Vacant Land, 1/3 of the notifications regarding land are for Under-utilized land. Eventhough Under-utilized land is not the focus of this study, as explained in Chapter 3, acknowledging this type of manifestation of land speculation is important. As an interviewed Brazilian urban economist and academic coined the term “*Second generation land speculation*” describing this phenomenon:

“In some cases, individuals or investors buy land that I call Second generation land and in extreme cases, Third generation land. This land was vacant in the 19<sup>th</sup> century and was later

occupied in the 20<sup>th</sup> century with a specific kind of low density use. Finally, individuals or investors buy these plots to build higher FAR<sup>37</sup>.”

(Interview with Brazilian urban economist and academic, Field work, 12 July 2018, São Paulo)

From this point on, the analyses will refer only to findings related to Vacant Land. Further research on land speculation that is manifested as Under-utilized land should be conducted to understand and assess more in-depth this kind of land speculation in the city of São Paulo.

### 4.1.2.3. Size of plot

According to Article 92 of the Masterplan of the Municipality of São Paulo 2014, a vacant plot needs to be at least 500m<sup>2</sup> to be notifiable. Plots smaller than this size might also be subject to notification, if they belong to the same owner and are sharing a border. When asked about the reason why the minimum size of notifiable vacant land was established 500m<sup>2</sup>, a Brazilian lawyer and academic, formerly involved directly with the implementation of PEUC and IPTU progressive in time in the Municipality of São Paulo<sup>38</sup>, explained that the national legislation for land use has established that the minimum plot size for development of 250m<sup>2</sup>. He claimed that most Brazilian cities have adopted this standard for the application of these instruments, however the Municipality of São Paulo decided for a bigger plot size after a social analysis. He further explained that plots smaller than 500m<sup>2</sup> are usually held by individual owners who own one small plot for personal use and not for speculation purposes. The same reasoning is confirmed by a public official from the Municipality of São Paulo, currently involved directly with the implementation of PEUC and IPTU progressive in time<sup>39</sup>. She explained that 500m<sup>2</sup> is the minimum plot size for building multi-family residential buildings. Additionally, she explained that this decision is also related to efficiency, because in a city as big as São Paulo it would be very difficult to work with plots that are smaller than 500m<sup>2</sup> as well.

During the period 2014-2018, the Municipality of São Paulo has delivered notifications to 457 plots of Vacant Land, with a total area of 134,5 ha. Therefore, the mean<sup>40</sup> surface area of notified Vacant Land is 2,945 m<sup>2</sup>/plot. However, there are big differences between the surface areas of the notified vacant land, with plot surface area varying from 31 m<sup>2</sup> to 263,991m<sup>2</sup>. As a result, the mean surface area might not be representative, as it might be distorted by plots of unusually small or large sizes.

Consequently, to have a better understanding of the typical size of a plot of notified Vacant Land, the surface area of each notified plot was classified into 12 categories, and a Frequency Analyses was conducted using SPSS:

	Surface area (m2)	Frequency	Percent
Valid	0 - 500	266	58.2
	501 - 1000	91	19.9
	1001 - 5000	66	14.4

<sup>37</sup> Floor Area Ratio. Here it refers to developing land at higher intensity.

<sup>38</sup> Interview, Field Work 18 July 2018, Sao Paulo

<sup>39</sup> Interview, Field Work 11 July 2018, Sao Paulo

<sup>40</sup> Total surface area divided by number of plots

5001 - 10000	14	3.1
10001 - 15000	4	.9
15001 - 20000	2	.4
20001 - 30000	6	1.3
30001 - 40000	2	.4
40001 - 50000	2	.4
50001 - 100000	2	.4
100001 - 200000	1	.2
200000 - 300000	1	.2
Total	457	100.0

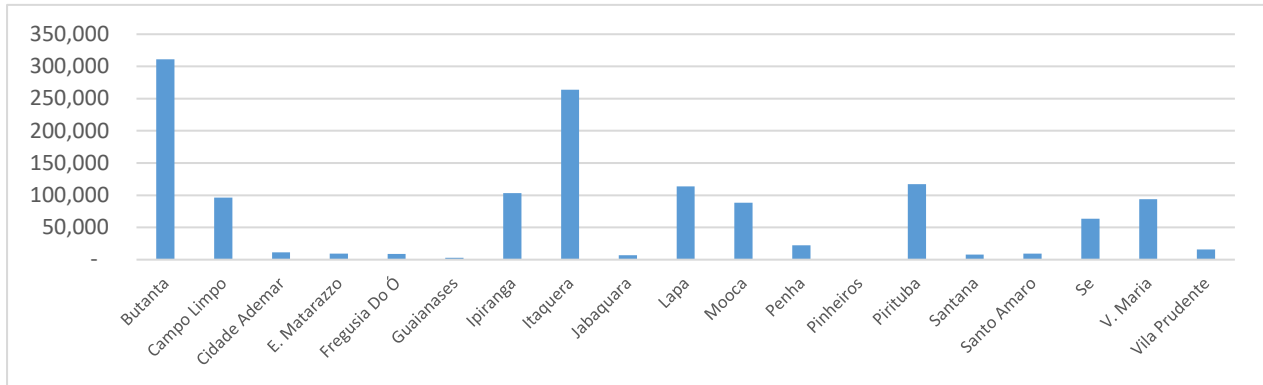
**Table 2 Frequency analyses of the surface area of Notified Vacant Land (Source: Municipality Database, table elaborated by the author)**

The table above shows that 266 notifications were done to Vacant Land smaller than 500m<sup>2</sup>. These types of plots can only be notified if at least two of them are adjacent to one another (share a border) and belong to the same landowner. Identifying these types of Vacant Land is important in order to make accountable also landowners that might attempt to bypass this law by subdividing their land to plots smaller than 500m<sup>2</sup>. This increases the fairness and justice in the process of the application of PEUC and IPTU progressive in time. However, when it comes to the efficiency of the process, 266 notifications done to Vacant Land smaller than 500m<sup>2</sup> amount to a total of 72,083 m<sup>2</sup> notified, while only 1 notification delivered to the largest Vacant Land in the database affects a plot of 263,991m<sup>2</sup>. This element will be discussed further in the second part of this Chapter, when discussing the components of Land Value Taxation that increase its efficiency as a tool to discourage land speculation.

#### **4.1.2.4. Spatial distribution**

- Location in Sub-Municipalities

Figure 6 and Figure 7 show two maps of the spatial distribution of notified Vacant Land in the Municipality of São Paulo. The first map (Fig.6) shows the distribution of notified Vacant Land according to Sub-Municipality. The map shows a concentration of notifications in the Sub-Municipality of Ipiranga (133 notifications), Sé (105 notifications) and Mooca (102 notifications), followed by Sub-Municipality of Lapa (24 notifications). Readings from this map confirm that the highest number of notifications are concentrated in the central part of the Municipality. However, this does not mean that the highest amount of Vacant Land is located in this area. Analyses of the spatial distribution of the notified Vacant Land in Figure 7 indicate larger areas of notified Vacant Land in the periphery of the city, with the highest concentration in the Sub-Municipalities of Butanta and Itaquera, with more than 25 ha of notified Vacant Land each, followed by Sub-Municipalities of Pirituba and Lapa, with more than 10 ha of notified Vacant Land each, as shown in the graph below:



**Graph 1 Total surface area of notified Vacant Land, distributed per Sub-Municipality (Source: Municipality Database, table elaborated by the author)**

This can be explained due to the urban morphology of the city, with smaller plots in the city centre and bigger ones in the periphery. While the reasons behind the distribution of notified Vacant Land in such a pattern can be interpreted through analysing the Urbanization process of the city, as presented in the beginning of this chapter.

When the new CDB shifted to Avenida Paulista, and then to Faria Lima, the region near Marginal Pinheiros and av. Luis Carlos Berrini, the traditional city centre of São Paulo was no longer attractive for investors. As a result, the prices of real estate fell dramatically in this part of the city. Therefore, landowners of land in this part of the city were faced with a land market that had no interest to invest in this area. During an interview with a lecturer of Urban and Regional Development subjects at Federal University of ABC, another possible facet of land speculation in this area was introduced, as she explained the decline of the traditional city centre in São Paulo:

“It is a real estate interest, that builds a new place to destroy the other one. Then later on comes back to the old one (referring to the traditional centre), to benefit from the low values. It also happened in Paulista years ago...”

(Interview with Lecturer of Urban and Regional Development at Federal University of ABC, Field work, 25 July 2018)

This suggests that in this case, land speculators are not the original landowners of these properties, but real estate agencies/ construction enterprises, which could purchase land at lower prices in this area and wait for its valorisation when an upgrading of the traditional city centre is carried out from the Municipality. The validity of this argument has been investigated in section “Landowners” of this Chapter.

While the amount of notifications is higher in the city centre, land vacancy is perceived as a phenomenon mostly prominent in the periphery of the city. In fact, a public official from the Municipality of São Paulo, currently involved directly with the implementation of PEUC and IPTU progressive in time, explained during an interview that land vacancy is present in more peripheral areas, or areas that have not yet been developed to their full potential, according to her<sup>41</sup>. These areas, in most of cases are either former industrial areas, such as Agua Branca in the Sub-Municipality of Lapa, or agricultural land not yet developed or informally developed, and are currently under the pressure of the urban expansion of the city.

<sup>41</sup> Interview, Field Work 11 July 2018, Sao Paulo

Transitioning from Fordist to Post-Fordist production technologies had its implication in terms of locational preferences for industries, as explained by Balchin, Isaac et al (2003) in Chapter 2. Shifting of industrial uses to more remote areas during '50s-'80s in São Paulo, as explained by Sandroni (2004) in the beginning of this chapter, left their former locations vacant for other urban uses. Similarly, agricultural land that is serviced with urban infrastructure and is under the pressure of urban expansion can easily be subject of land speculation. As explained in Chapter 2, it is precisely in that area, where urbanization becomes imminent and agriculture land use becomes secondary, that most likely speculative values of land arise (Alonso, 1964). Moreover, as explained in the beginning of this Chapter, after the approval of "Lei do Inquilinato" in 1941, a lot of low income groups could not afford market inside the urbanized area and moved to the periphery, where they could afford housing in the informal market. Some of the notified Vacant Land is located inside such developments, as shall be explained further in this section.

The morphology of former industrial areas or agricultural land dictates an urban morphology of larger land sizes. The average area of the notified Vacant Land for each Sub-prefecture, shown in Annex 2, confirms this statement.

So far, the findings related to the location of notified Vacant Land have been interpreted through understanding the urbanization process and the land markets in São Paulo. However, this does not tell the whole story. Analysing the land regulation policies in place from public authorities in the city of São Paulo is another layer of information that is necessary, to fully understand the reasons behind such a distribution of Vacant Land in this city. This analysis is presented in the next section.



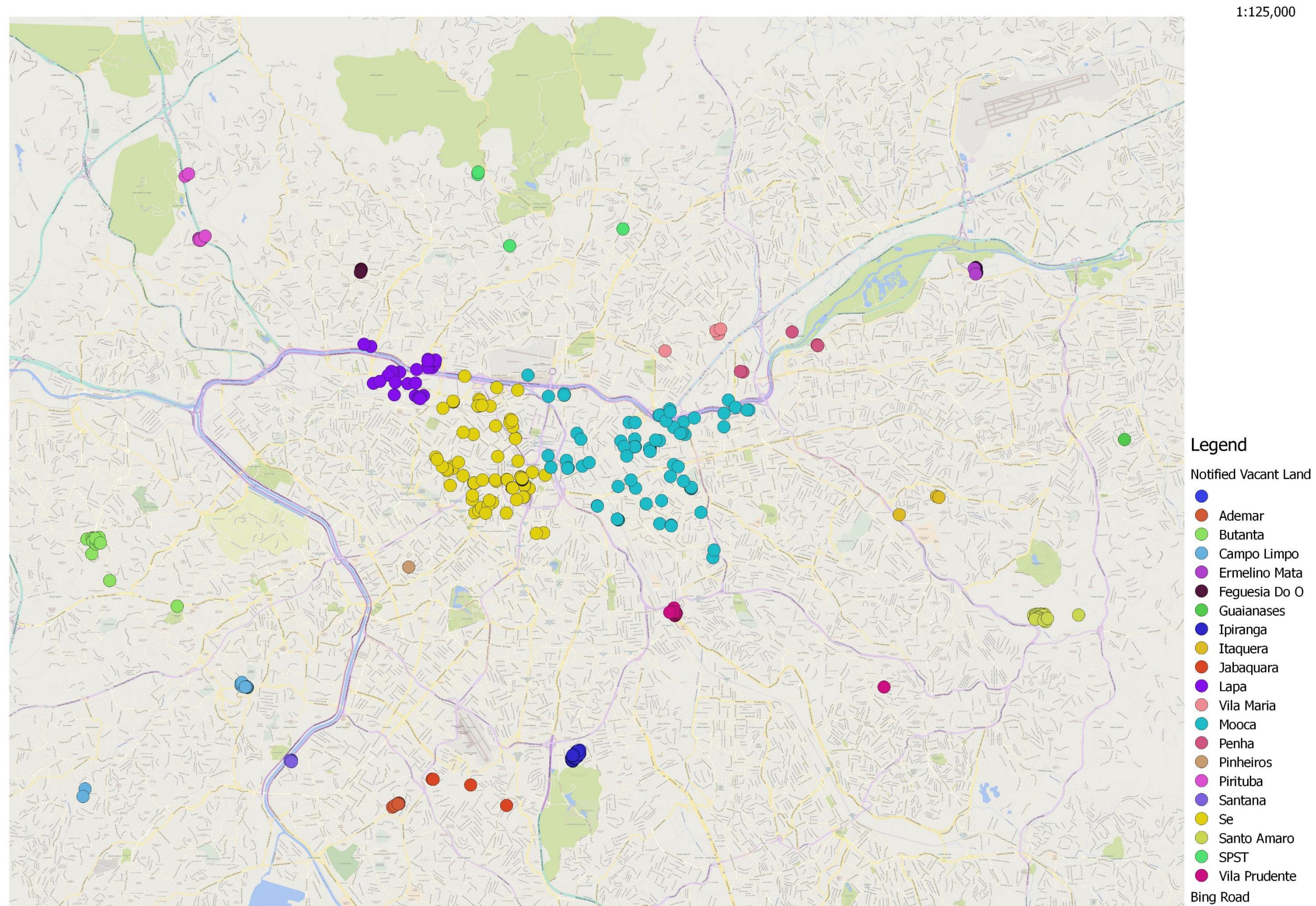
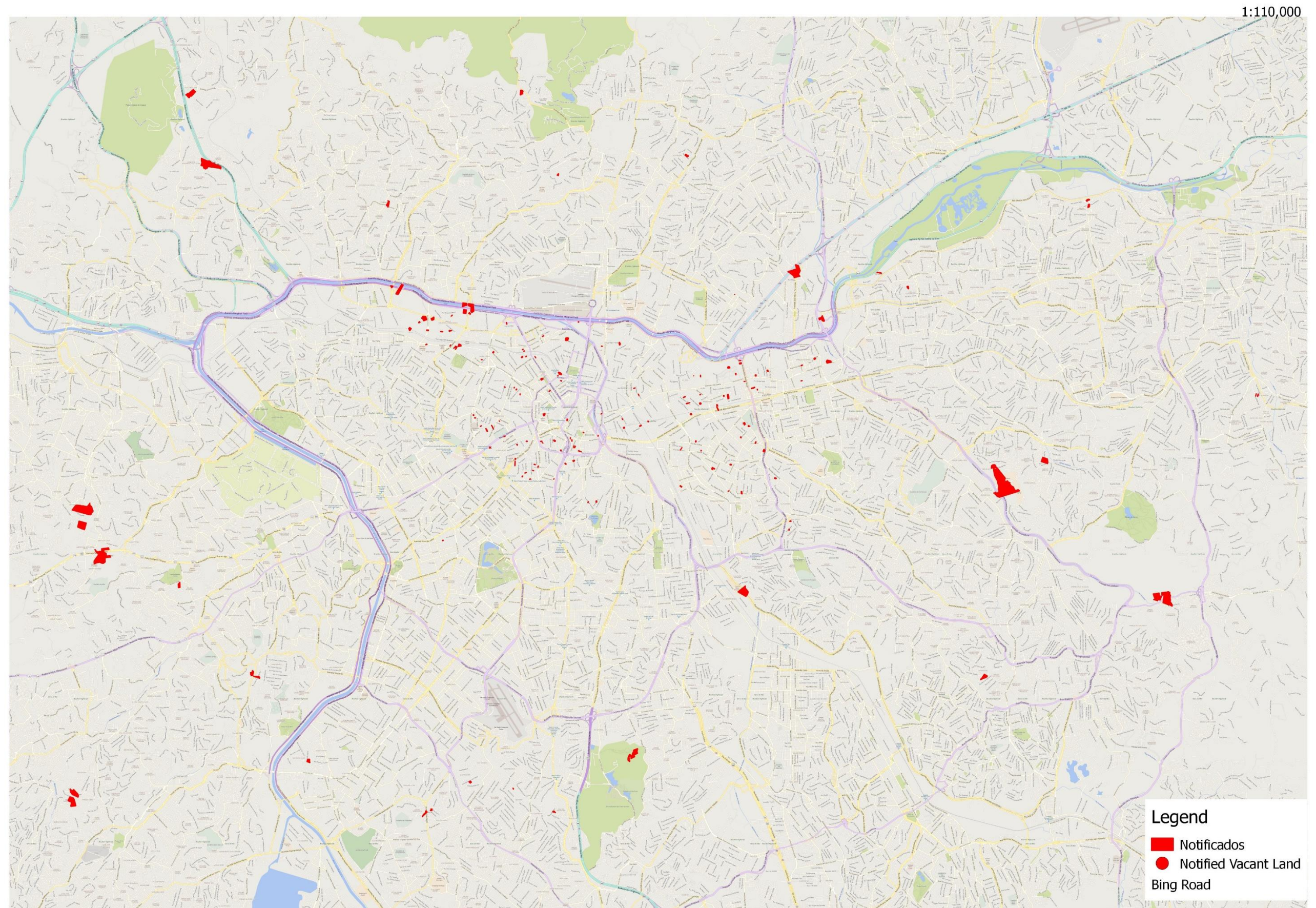


Figure 6 Map of spatial distribution of Notified Vacant Land according to Sub-Municipality (Shapefile source: Municipality of São Paulo, edited in QGIS by author)





**Figure 7** Map of spatial distribution of Notified Vacant Land with respective areas (Shapefile source: Municipality of São Paulo, edited in QGIS by author)



- Location in areas with specific land regulation policies

To understand how land regulation policies have affected the location of land speculation in the context of São Paulo, it is necessary to briefly clarify two instruments that are imposed in certain areas where Vacant Land has been notified:

- *Special Zones of Social Interest (ZEIS)*: are areas dedicated predominantly to housing for the of low income, through urban improvements, environmental restoration and land regularization of settlements precarious and irregular conditions, as well as the provision of new Housing of Social Interest - HIS<sup>42</sup> and Housing of Popular Market – HMP<sup>43,44</sup>; to be endowed with social equipment, infrastructures, green areas and local businesses and services, in the urban area (Article 44, Law nr. 16 050 of 31 July 2014 Urban Development Policy and Masterplan Strategy of the Municipality of São Paulo, 2014)<sup>45</sup>.
  - ZEIS 2: are areas characterized by undeveloped or underutilized plots that are suitable for urbanization and where there is a public or private interest in producing HIS.
  - ZEIS 3 are areas with idle, underutilized, unused, corroded or deteriorated properties located in regions provided with urban services, infrastructure and a good job offer, where there is a public or private interest in promoting HIS.
  - ZEIS 5: are plots or groups of plots, preferably empty or underutilized, located in areas provided with urban services, equipment and infrastructure, where there is a private interest in producing HMP and HIS.
- *The Urban Operations (UO)*: aim to promote improvements in predetermined areas of the city through partnerships between the Public Power and Private initiative. Each area, object of Urban Operation, has a specific law establishing the goals to be fulfilled, as well as mechanisms of incentives and benefits. Within the perimeter of each Urban Operation flexibility regarding the limits of development established by the Zoning Law, upon payment of a financial contribution, also known as Certificates of Additional Construction Potential (Certificados de Potencial Construtivo Adicional de Construção – CEPAC). This money is paid to the City Hall and can only be used for urban improvements in the region itself (Law nr. 16 050 of 31 July 2014 Urban Development Policy and Masterplan Strategy of the Municipality of São Paulo, 2014).

Having established a general understanding of these two instruments, findings on the spatial distribution of notifications of Vacant Land in areas that are regulated by these instruments is shown in the map below:

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<sup>42</sup> Habitações de Interesse Social

<sup>43</sup> Habitações de Mercado Popular

<sup>44</sup> Both HIS and HMP are social housing provided for lower income group, with specific design standards, regularized by (Decree no. 56 759, of 7 January 2016, Establishes specific discipline of land use and occupation, as well as building regulations for Housing of Social Interest (HIS), Housing of Popular Market (HMP), as well as HIS entrepreneurship, HMP entrepreneurship and Entrepreneurship in Zones of Special Social Interest, according to Law 16 050, of 31 July 2014, 2016)

<sup>45</sup> For more details on regulations regarding ZEIS, HIS and HMP see Annex 1.



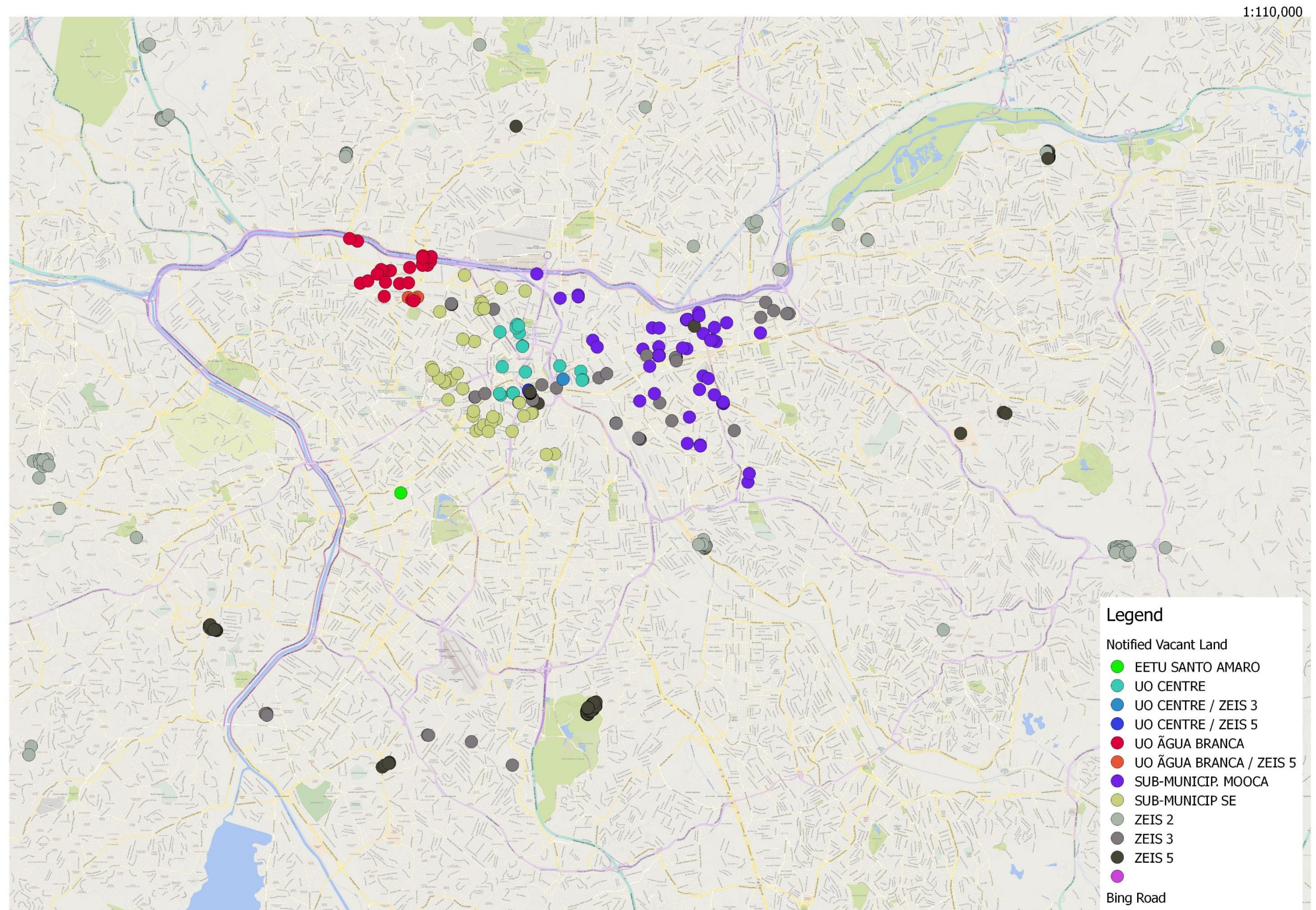
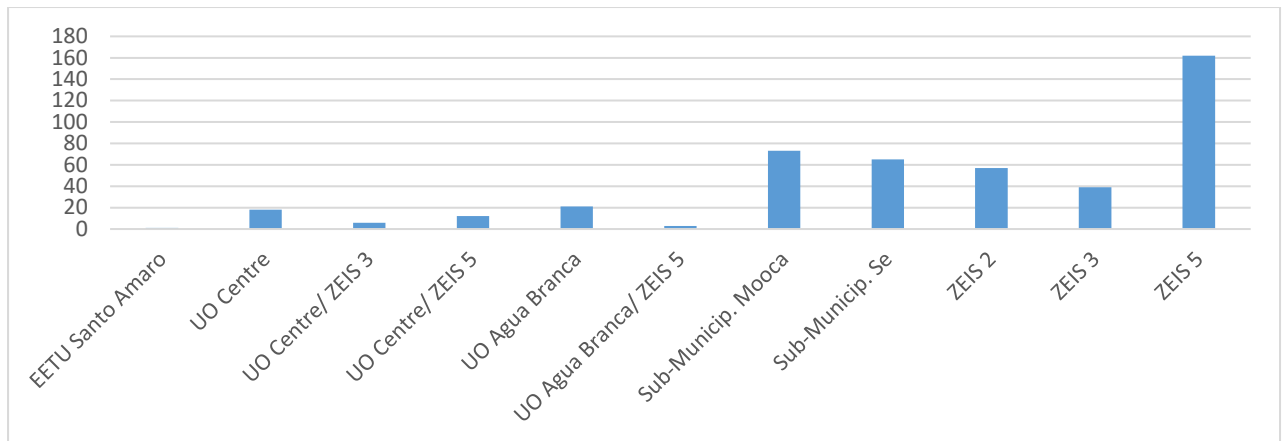
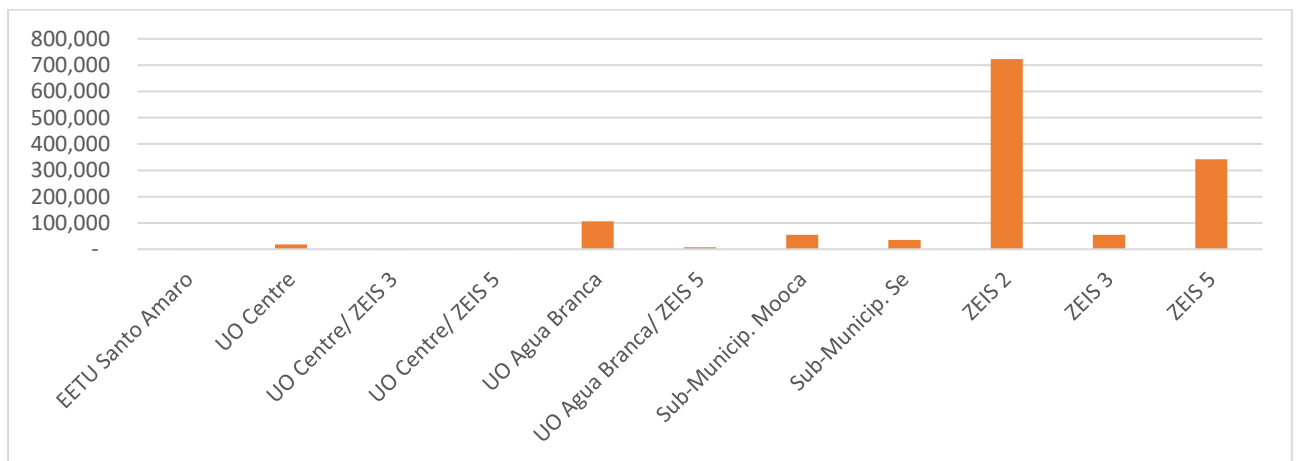


Figure 8 Location of Notified Vacant Land and specific land regulation policies (Shapefile source: Municipality of São Paulo, edited in QGIS by author)





**Graph 2** Number of Notified Vacant Land and areas with specific land regulation policies (Source: Municipality Database, table elaborated by the author)



**Graph 3** Total surface area of Notified Vacant Land and in areas with specific land regulation policies (Source: Municipality Database, table elaborated by the author)

Figure 8 and Chart 4 indicates that the majority of notified Vacant Land is located in Special Zones of Social Interest (ZEIS). In these cases, vacant land can only be developed for social housing, as explained above. This can be one of the reasons why land remained vacant in ZEIS. During the interview with a Lecturer of Urban and Regional Development at Federal University of ABC, she clarified that development in these areas depend in the public private partnership for building social housing<sup>46</sup>. Additionally, landowners do not have receive considerable profits from these types of developments, so they chose to wait. When asked “Why would an individual/investor chose to buy and speculate with land in a ZEIS area?”, an urban economist and academic answered:

“The contrary happened. These areas were vacant for a long time and then the Masterplan declared them as Special Zones of Social Interest, for several reasons. After this, in 2014, the Municipality decided to impose a IPTU progressive in time, to push these landowners to develop their land. Now they (the landowners) have to build there or sell the land”

(Interview with Brazilian urban economist and academic, Field work, 12 July 2018)

<sup>46</sup> Interview, Field Work 25 July 2018, Sao Paulo

In this case, like Archer (1973) explains referring to the case Gainesway' subdivision in Kentucky, the expectations of landowners regarding the increase in value of their land were not realistic or failed to predict future urban regulations. Again, not all speculation is successful (Archer, 1973).

Development of land vacancy in Urban Operation Centre has been caused by the overall decline in land markets in the traditional city center as explained above. On the other hand, the case of Urban Operation Agua Branca is different. Agua Branca, an abandoned industrial site, was declared Urban Operation area in 1995<sup>47</sup>. An interviewed Public official at the Secretary of Urbanism of Municipality of São Paulo,<sup>48</sup> explained that while the Municipality undertook several initiatives to transform this area into a residential and commercial area, during the first two decades Agua Branca received less attention from developers due to other competing sites such as Faria Lima and Berrini, the new emerging CBD's as explained in the beginning of this chapter. During the last year, the Municipality has been reviewing the Urban Operation of Agua Branca, introducing new measures to facilitate development in this area. The expectation for such facilitations could be one of the reasons behind land vacancy in this area.

In the Sub-Municipality of Mooca and Se there have been several notifications of Vacant Land, however the overall surface area notified is relatively low, compared to other sites. Vacant Land in these Sub-Municipalities does not have to comply with any specific land regulation policy introduced in this section, besides the regulations of the Masterplan. Therefore, land vacancy in these two locations is limited to the analyses provided in the beginning of this section.

#### 4.1.2.5. Provisional land use

As suggested by Shoup (1970), while the owner of a plot might delay the ultimate development waiting to achieve the highest profit, he might decide to introduce temporary uses to this land, to yield an interim income. This section analyses whether or not this is the case with Vacant Land in São Paulo. In Geosampa, the online database of the Municipality of São Paulo, has facilitated the identification of 11 temporary uses given to some of the notified Vacant Land.

Temporary service	No of notified Vacant Land
Service for collective residence	7
Service for commercial unit	18
Service for comm. And res. Unit	5
Cortiço	1
Service for Hotel	2
Service for Industry	4

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<sup>47</sup> Law no 11 774 of 18 May 1995 Establishes guidelines and mechanisms for the implementation of Urban Operation Agua Branca, 1995. Sao Paulo:

<sup>48</sup> Interview, Field Work 30 July 2018, Sao Paulo

Service for offices	2
Parking (General)	4
Service for residential	24
Sport club	1
Warehouse	1
No temporary use	388

**Table 3 Temporary services offered in the Notified Vacant Land (Source: Geosampa, table elaborated by author)**

The table shows that only 15% of the notified Vacant Land has a provisional land use. Eventhough the Municipality has labelled these uses according to which land use this Vacant Land is serving to, most of the provisional use is parking, as observed on the field and through Google Earth.



**Figure 9 Example of the provisional use "Service for collective residence" (left) and "Service for commercial unit" (right) of notified Vacant Lands (Source: Google Earth)**



**Figure 10 Pictures of a notified Vacant Land with provisional land use as parking in Agua Branca (Source: Author archive)**

Given that most of the observed cases of provisional uses fall under the category of "Parking", there is a concern about whether such a use is necessary for the surrounding activities, and therefore the land is providing a service that shall not me changed. When asked about this, a former public official of the Municipality of São Paulo who was directly involved with the implementation of PEUC and IPTU progressive in time, responded that the assessment for parking need was already carried out by the Masterplan. The latter, introduced a strategy to transform mobility in the city of São Paulo. Therefore, these notifications were done after

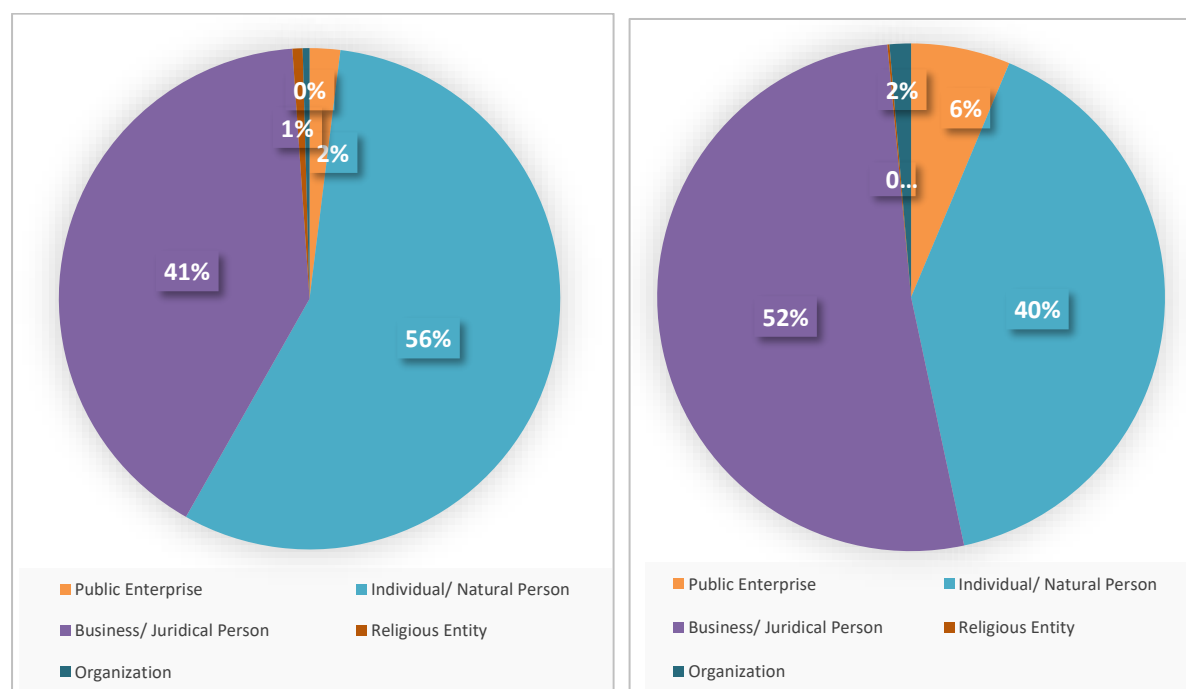
consulting the transportation strategy and evaluating how the need for parking space is addressed in each area.

Through observations in the field, another use was identified that is not in the list of provisional uses in Geosampa, the provisional use “Advertising”. Like Shoup (1970) suggests, in some cases vacant land is rented out as a space to host advertising posters or signs. All these uses are ways to provide an interim income for the landowner, until they decide to develop the land.

#### 4.1.2.6. Landowners

The “List of notified properties due to noncompliance with the Social Function of Property” does not contain information about the landowner of the property notified. This information can be accessed through Geosampa, individually for each property. Information regarding the individual names of Landowners accessed through Geosampa have been initially classified into 5 categories, as shown in the Charts below.

56% of the notified Vacant Land is owned by individual landowners, with businesses having 41% of the notifications, Public Enterprises 2% of the notifications, Religious Entities 1% and Organizations less than 1% of notifications. But these ratios change substantially when the amount of surface area of notified Vacant Land is analysed, as shown in Chart 7 (right).

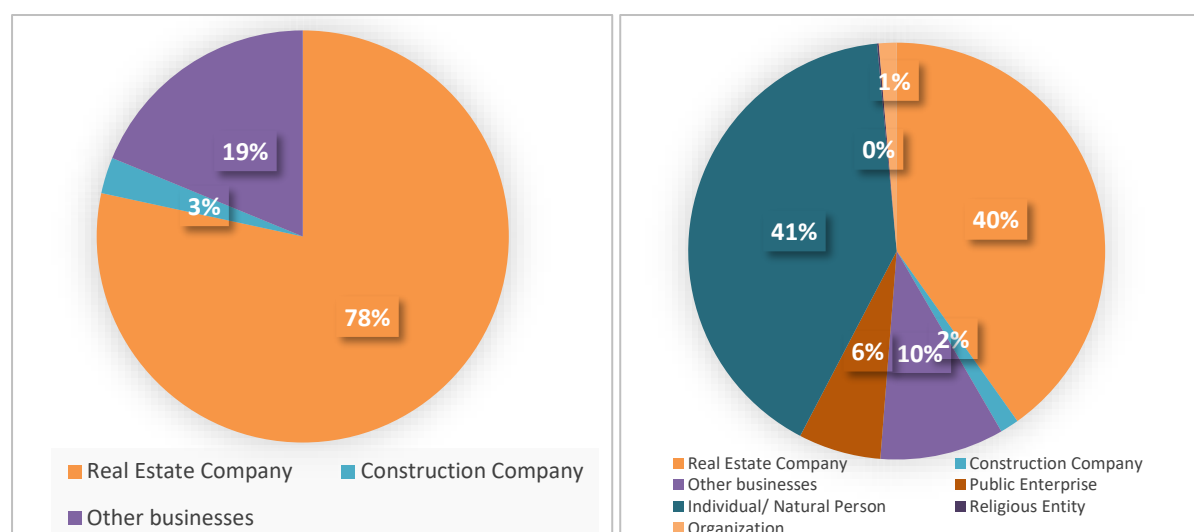


**Chart 3 Landowners according to the number of notifications (left) and surface area (right) of notified Vacant Land (Source: Geosampa, Chart elaborated by author)**

The overall surface area of notified Vacant land owned by individuals is 54,2 ha and the one owned by businesses is 69,8 ha. A further investigation on the type of businesses that own the notified Vacant Land resulted in the identification of two main categories: Real Estate Companies<sup>49</sup> and Construction Companies, and various other different types of businesses that owned substantially less amount of land compared to the first two groups and have therefore

<sup>49</sup> This group includes Real Estate Companies as well as companies whose main activity is related to renting or selling their own properties.

been joined into one group named “Other businesses”. The chart below shows the distribution of notified Vacant Land according to surface area for each of these three categories:



**Chart 4** Landowners of the "Business" category according to the surface area of notified Vacant Land (Source: Geosampa, Chart elaborated by author)

**Chart 5** Detailed list of all landowners according to the surface area of notified Vacant Land (Source: Geosampa, Chart elaborated by author)

Charts above show that Real Estate Companies own 78% of the surface area of notified Vacant Land under the category owned by “Businesses” and 40% of the overall surface area of notified Vacant Land. In other words, the surface area of Notified Vacant Land owned by Real Estate Companies is almost the same as the surface area of Notified Vacant Land owned by individuals.

Further investigation on the 10 largest plots of notified Vacant Land reveal that, even the cases in which the owners are Individuals, these individuals are owners of Real Estate Companies, as shown in the table in Annex 2.

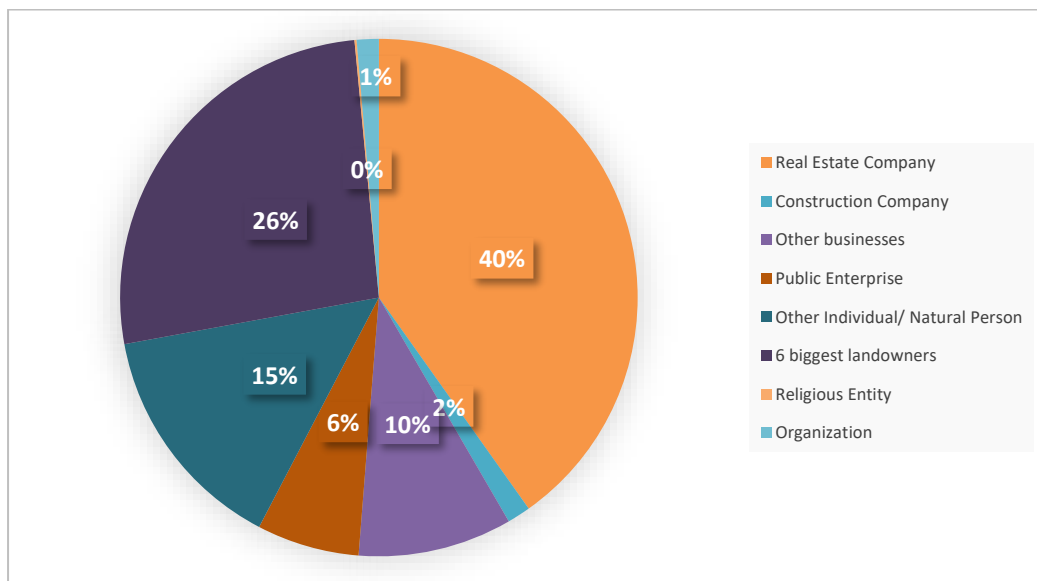
Besides from these 5 landowners of large amounts of notified Vacant Land, another landowner who owns 132 plots of notified Vacant Land was identified. The table below gives more data about large landowners amongst the category owned by “Individual/ Natural Person”:

Landowner	Surface area of notified Vacant Land owned (m2)
Individual Landowner 1	121,883
Individual Landowner 2	98,911
Individual Landowner 3	32,573
Individual Landowner 4	29,738
Individual Landowner 5	27,000
Individual Landowner 6 (owner of 132 plots of land)	40,401
<b>Total area of notified Vacant Land owned by 6 Landowners</b>	<b>350,506</b>
<b>Total area of notified Vacant Land owned by other individual landowners</b>	<b>192,164</b>

**Table 4** Large landowners of notified Vacant Land in São Paulo

Information from the table above shows that 64% of land owned by individual landowners is under the ownership of 6 large landowners. A clearer picture of land ownership patterns is

achieved by integrating this information with the information of land owned by other categories, like real estate companies, construction companies, etc, as shown in the chart below. 40% of the surface area of notified Vacant Land is owned by Real Estate Companies, 26% is owned by 6 large landowners who are also owners of Real Estate Companies, 15% is owned by other individual landowners, 10% is owned by other types of businesses, 6% is owned by public enterprises, 2% is owned by construction companies, 1% by organizations and less than 1% by religious entities. In overall, 66% of the notified Vacant Land is owned by Real Estate Companies or owners of such companies, indicating a situation of Market Power. Eventhough this is not a case of monopoly over land market, because these real estate companies are owned by different individuals, there is an asymmetric distribution of land between landowners involved with Real Estate Companies and other landowners. In such cases, like Mills (1980) concludes, when market power is high, land development pace decreases and so does its social efficiency.



**Chart 6 Detailed distribution of landownership according to the surface area of notified Vacant Land (Source: Geosampa, Chart elaborated by author)**

## **4.2.Land value tax and IPTU progressive in time in São Paulo – measuring the Independent Variable**

### **4.2.1. Property tax in São Paulo**

Law 6.989<sup>50</sup> specifies “Property tax” and “Urban Territorial (land) tax” as part of the tributes that shall be governed by the Municipality of São Paulo. “Property tax” and “Urban Territorial (land) Tax”, compose what is also referred to as Imposto sobre a Propriedade Predial e Territorial Urbana (IPTU), translated as Urban Property and Land Tax. According to this law, the tax base of IPTU shall be all buildings and land located in the Urban Area of the Municipality. Article 3 of this law, specifies that for the purpose of this tax, an urban area is considered to be any area where there are improvements carried out or maintained by the Public Authorities, such paving, with rainwater pipes, water supply, sewage system, public lighting

<sup>50</sup> Law no 6 989 of 29 December 1966 On the tax system of the Municipality of Sao Paulo and other arrangements, 1966. Sao Paulo:



network, as well as primary school or health centre, at a maximum distance of three kilometres from the property considered. However, Art 2 of Municipal Decree Nº 56.235<sup>51</sup> states that the tax is to be paid if at least two of the up-mentioned services are delivered. This tax will be levied on ownership, useful domain or possession of real estate property, without regard to the taxpayer's personal status, especially his economic capability<sup>52</sup>.

The general IPTU tax rate is distinguished between residential and non-residential uses. For residential areas, the building tax is 1% of the value of the building, whereas for non-residential uses this rate is 1.5% of the value of the building. When it comes to land, regardless of its assigned land use from the Master Plan, the rate of IPTU tax is 1.5%. Therefore this tax matches the definition of Land value tax defined in Chapter 2 and 3: "Land value tax is a variant of the property tax that imposes a higher tax rate on land than on improvements, or taxes only land value" (Dye and England, 2010, p.2).

This tax can increase or decrease progressively, in accordance to the value of the building and land. Also, the rate of the tax can increase progressively in time when this tax is imposed on properties that do not fulfil their Social Function (IPTU progressive in time) which is the focus of this study.

#### **4.2.2. IPTU progressive in time in São Paulo**

##### **4.2.2.1. IPTU progressive in time tax base**

- Assessed base

The Masterplan of 2014 defines the scope of application of IPTU progressive in time in areas covering almost the whole Municipal Border, as shown in Annex 3. The Municipality of São Paulo as adapted a Value-based assessment approach to evaluate the value of the properties that are part of the IPTU progressive in time tax base<sup>53</sup>. Currently, the values of square meter are incorporated in the Generic Plant of Values (PGV). The process of evaluation is in accordance with article 2 of Law 10 235/86 and it includes components such as: current prices of transactions and offers for sale in the real estate market, current locations, characteristics of the region in which the property is situated and other technically recognized information data. During this process, information received about current transactions from Real Estate brokers are analysed, taking into consideration also factors that might impact these prices such as zoning, landfills, urban operations, etc.

This method of evaluation is similar to a capital value assessment approach, as describes in Chapter 2. As Bird and Slack (2004) argue, this method is always preferable as it provides with higher accuracy in determining each individual property's value, and therefore increases the tax's efficiency.

- Type of exemptions

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<sup>51</sup> Decree no 56 235 of 3 July 2015 Approves the Consolidation of the Tax Laws of the Municipality of Sao Paulo, 2015. Sao Paulo:

<sup>52</sup> Law no 5 172 of 25 October 1966 National Tax Code, 1966. Brasilia:

<sup>53</sup> Law no 10 235 of 16 December 1986 Provides the method of evaluation of the market values of properties, of the purpose of launching of the Urban Property and Land Tax; grants discounts on the market values of the properties subject to the incidence of these taxes, in the exercise from 1987 and gives other provisions, 1986. Sao Paulo:

While the application base of this tax is widely encompassing, there are some exemptions from the tax base. Exemptions apply for properties which host activities that do not require edification, except parking lots which are not exempted. Exemptions also apply for plots that are included in the Municipal System of Protected Areas, Green Areas and Free Spaces, are classified as ZEPAM or fulfil relevant environmental function. Another exemption category are areas classified as Special Zones of Cultural Preservation. Finally, exemptions apply also to properties that are undeveloped due to legal reasons that are insurmountable by simple conduct of the owner; the exemption in these cases applies as long as the legal condition lasts<sup>54</sup>.

When assessing the components that make property tax more efficient, exemptions have been criticized for causing inequality in distributing the costs of urban services amongst all beneficiaries (Bird and Slack, 2004). When the purpose of the tax is to discourage speculation, it should be assessed whether these exemptions apply to areas where land speculation could occur. All the cases exempted from the IPTU progressive in time are cases in which edification cannot and should not occur. Henceforth the list of exemptions in this case does not decrease the tax's efficiency as a tool to discourage land speculation.

- Taxing of vacant land

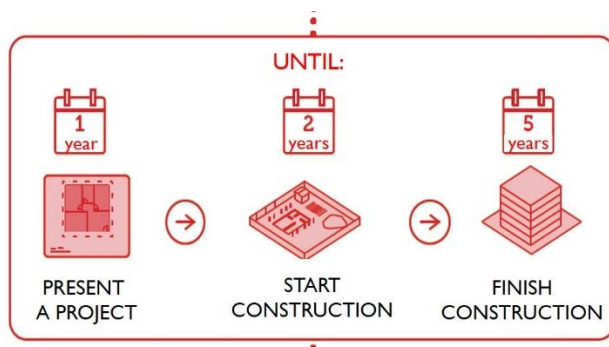
A land value tax can be used as a tool to discourage land speculation only if it can be applied to vacant land. In the case of São Paulo, IPTU progressive in time can be applied to properties that do not fulfil their Social Function, pertaining to one of these categories: Vacant land, Under-utilized land and Not-utilized buildings. Therefore, vacant land is taxable. However, only plots bigger than 500m<sup>2</sup> can be taxed. Plots smaller than this size might also be subject to this classification, if they belong to the same owner and are sharing a border (Art.92). Singular plots that are smaller than 500m<sup>2</sup> do not fall under the scope of this tax. This might influence the efficiency of this tax as a tool to discourage land speculation, however this influence is minimal, as explained through interviews with local experts in section 4.1.2.3 Size of plot.

#### **4.2.2.2. IPTU progressive in time tax rate**

The rate of IPTU progressive in time, as the terminology suggests, is progressive in time. The application of IPTU progressive in time is always preceded by the notification for compulsory subdivision or construction (PEUC). This notification serves to notify the owner of a property that is identified as non-compliant with the Social Function of Property, of his/her obligations and the time he/she has to fulfil them. According to sub-section II of the Master Plan, in the case of vacant land, which is one of the three cases of non-compliance with the Social Function of Property and which is also the scope of this study as established in Chapter 3, the obligation of the owner is to develop his/her property, compliant to the regulations of the Master Plan. The timeline that the developer has to follow is described in the figure below:

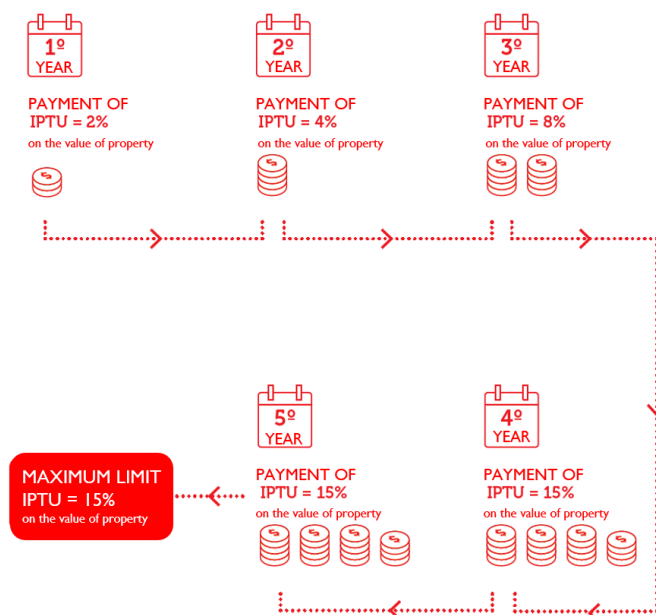
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<sup>54</sup> Law nr. 16 050 of 31 July 2014 Urban Development Policy and Masterplan Strategy of the Municipality of Sao Paulo, 2014. Sao Paulo, Brazil:



**Figure 11 Timeline to be followed for the notified Vacant Land (Source: Masterplan 2014, translated by author)**

If the owner does not comply to either one of these deadline, his/her property is subject of the IPTU progressive in time. This means that the IPTU of his/her property shall be calculated at a rate of 2% the first year, 4% the second year, and so on until 15% in the fifth year, as explained by the figure below:



**Figure 12 Progressive rate over time of IPTU (Source: Masterplan 2014, translated by author)**

Bird and Slack (2004) argue that one of the striking features of property tax in developing countries is how low the tax rate is. Even in Argentina where property tax rate is progressive, the rate rarely exceeds 1%. Similar is the case of Indonesia, with a rate of only 0.5% (Bird and Slack, 2004). Nevertheless, countries that apply tax on vacant land have introduced higher rates, as shown in Annex 3. Comparing to these cases, it is fair to conclude that the progressive rate introduced in São Paulo is substantial and would contribute to the tax efficiency as a tool to discourage land speculation.

#### **4.2.2.3. IPTU progressive in time tax governance and administration**

- Frequency of Fiscal Cadastre Updating

As stated above, the assessed values of properties for tax purposes are published in the Generic Value Maps, so-called Planta Generica de Valores (PGV). While legally the Generic Value

Map is supposed to be updated yearly, a former public servant of the Municipality of São Paulo and IPTU expert, claims that the latest update of the Generic Value Map was done in 2011 and launched in 2012. Nevertheless, he claims that every year, the municipality applies a calculated coefficient to actualize the values.

The method of updating of the PGV does not guarantee the highest accuracy in evaluating and updating the values of properties. In time this might cause considerable gaps between the market real estate prices and the ones reflected in PGV and undermine the efficiency of the tax, an argument also argued by Bird and Slack (2004) in Chapter 2.

- Identification of Tax Base

One of the initiators of the application of PEUC/IPTU progressive in time in the Municipality of São Paulo interviewed, highlights the importance of identifying the right tax base, hence properties that are not fulfilling their Social Function. PEUC/IPTU progressive in time, he claims, are delicate instruments to work with, because they seemingly interfere with private property rights, which are very important in the Brazilian culture. Therefore, having a rigorous and transparent process since the very beginning, in identifying all the right properties, was very important.

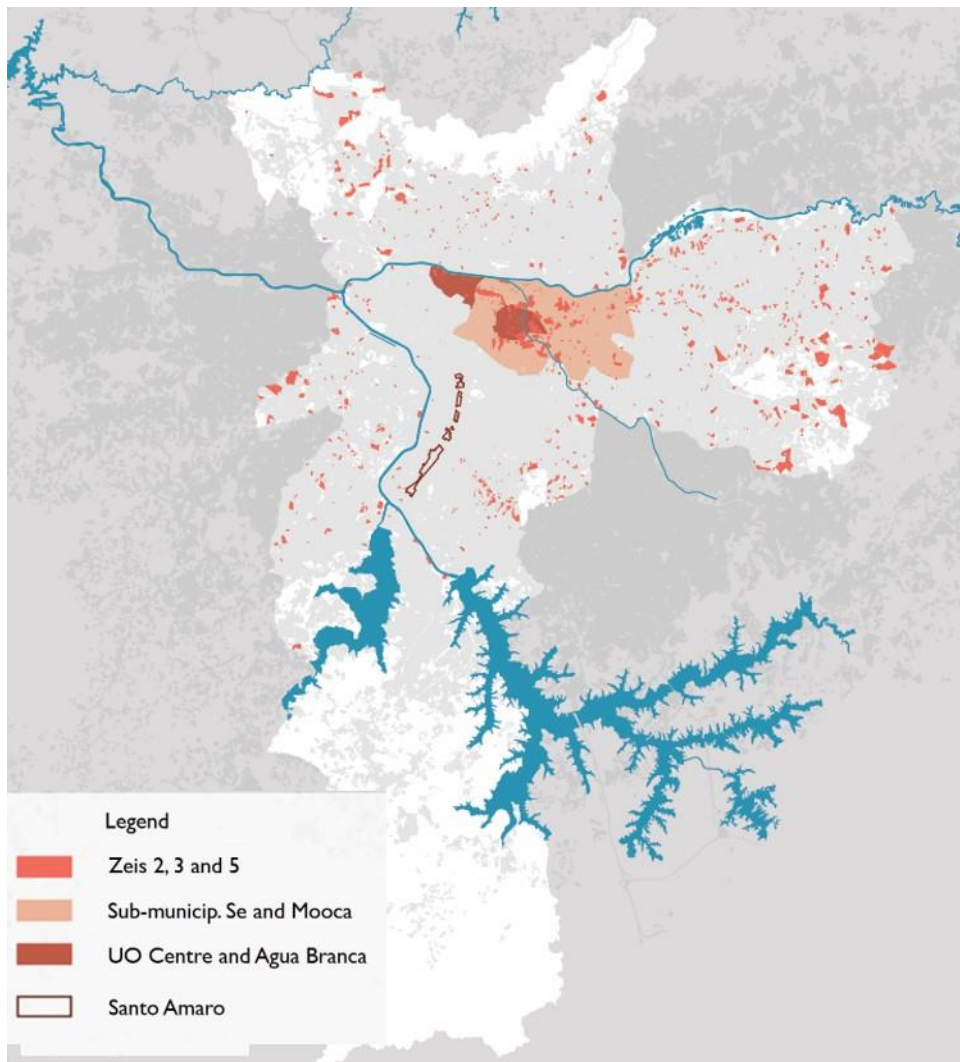
The whole process of identification, notification and monitoring of the notified properties that do not fulfil their Social Function is managed by the Department of the Control of Social Function of Property in the Municipality of São Paulo. This directory initially received a database of not-built or under-utilized land from the Secretary of Finance. The first phase of analysing this data consisted of legal analyses, starting with the Passport of the Real Estate Property<sup>55</sup> which contains legal information such as the name of the owner, whether there are any legal processes related to the property and so on. After this initial analysis, the in-site analyses by architects followed, analysing the conditions of the property and updating the information.

All this information was coordinated with other Secretaries within the Municipality, to understand whether the property could be subject to any kind of public project, expropriation for public purposes, and other restrictions deriving from other Secretaries within the Municipality. Finally, the director of the department decided whether the property is notifiable or not based on the findings of this analysis.

From 2014 until now, the work was focused on a smaller area than the Masterplan allowed, prioritizing the areas where the implementation of these instruments would push forward Municipality's projects related to Urban Transformation and its social agenda. As one former public official involved directly with the implementation of PEUC/IPTU explained during an interview, they started the work with the areas of Urban Operation Centre and Urban Operation Agua Branca. Then they expanded the areas, to include idle properties in Zeis 2, 3 and 5. In the next step, they expanded the notifications in Sub-Municipalities of Sé and Mooca, as well as Santo Amaro.

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<sup>55</sup> Matrícula



**Figure 13** Areas where IPTU progressive in time was applied in the Municipality of São Paulo during 2014-2018 period

This type of prioritization of identified tax base according to the Masterplan development strategy contributes to higher tax effectiveness in terms of urban land policy. As Denaldi, Brajato et al (2017) conclude, it might not be effective to disperse the notifications on all Vacant Land of the Municipality at once, because the market would not be able to absorb it and the public sector to manage it in the right time.

- Notifications

Once the decision was taken for a property, the property has to be notified of PEUC/IPTU progressive in time. Article 97 of the Master Plan, defines how the notification shall be delivered, as follows:

- By the official of the competent body of the Public Authority/ Municipality, to the owner of the property or, in case the owner is a judicial person, to whom it has general management powers or administration;
- By registered letter with acknowledgment of receipt, when the owner is resident or has his head office outside the territory of the Municipality;

- By notice, when the attempt to notify in the manner provided for, in items I and II of this article, has been attempted 3 times

In the case of São Paulo, as one former public official involved directly with the implementation of PEUC/IPTU explained, the majority of the notifications were delivered personally by the staff of the Municipality to the owners.

- Facilitation

To facilitate the process of land development for landowners that have been notified but cannot develop the land themselves, the Municipality approved Law no.16 377 on Real Estate Consortium of Social Interest<sup>56</sup>, allowing the creation of consortiums between the Municipality and the landowners. According to the provisions of this law and Masterplan, the owner transfers his property to the Municipality for the realization of real estate consortium. In this case, he/she will receive as payment, real estate units, after the land is developed, with a value corresponding to the value of the property before of the execution of urbanization and construction works. In these cases, the Municipality shall make the appropriate use of the real estate units resulting from the of the real estate consortium, within a maximum of 5 (five) years. Law no.16 377 specifies that the consortium will be adopted to produce HIS (Housing of Social Interest), to collaborate in reducing the housing deficit.

The initiator of the implementation of PEUC/IPTU progressive in time in São Paulo claimed that the Municipality offered these facilitating mechanisms to highlight once again that the purpose of IPTU progressive in time is not to punish the landowners and to raise revenues, but to fulfil the social function of property. He further explained that there have been experiences with these consortiums since the start of the implementation of PEUC/IPTU progressive in time, mentioning the case of a notified landowner in Jabaquara region.

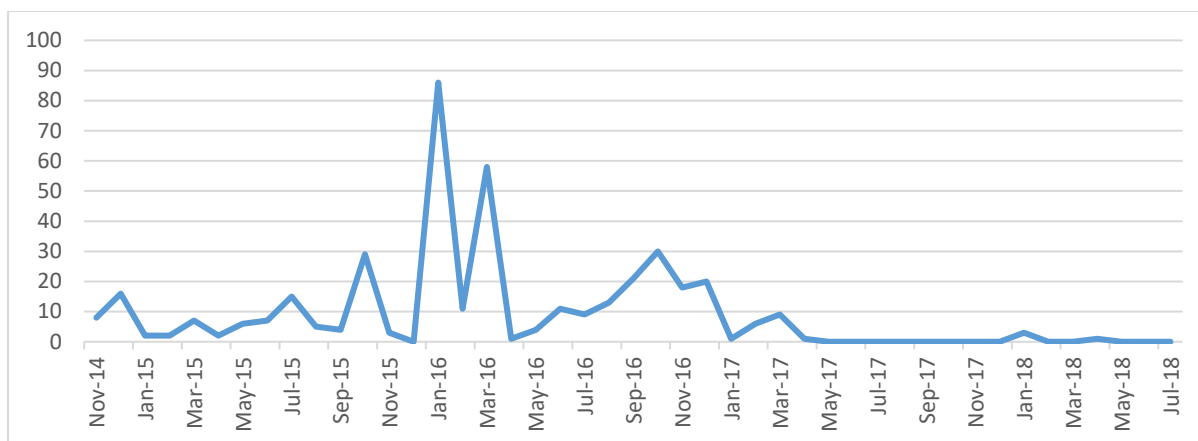
- Consistency of enforcement

Enforcement has to do with delivering of notifications, monitoring of compliance with PEUC/IPTU progressive in time, and billing of the tax for the landowners who have not fulfilled their obligation to develop within the timeline described above.

The graph below was built on the data regarding the number of notifications delivered each month, since the start of the application of PEUC and IPTU, hence November 2014, until today:

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<sup>56</sup> Law no 16 377 of 1 February 2016 Regulates the Real Estate Consortium of Social Interest provided for in art. 46 and 47 of Federal Law 10 257 of 10 July 2001 (City Statute) and art. 102 of the Strategic Master Plan, 2016. Sao Paulo:



**Graph 4 Date of notifications of Vacant Land (Source: Municipality of São Paulo, graph elaborated by the author)**

As we can see from the graph above, the peaking period of notification delivery was during 2016, followed by a dramatic drop in the following years 2017 and 2018. In fact, during the period January – July of 2018 only 4 notifications for Vacant land were delivered.

Six amongst eight interviewed experts on the field, claim that this drop might be attributed to the political change occurred in the Municipality of São Paulo after the local elections of October 2016. In January 2017, the new elected mayor of PSDB party, is has a more liberal and market-oriented approach towards several issues regarding Urban Management. In fact, a former public official of the Municipality of São Paulo and researcher of PECU/IPTU claims that the current management of the Municipality justifies the drop of the number of notifications as a review of the methodology and a need to understand the impact of what was done in the previous management. But to almost stop all the notifications in 2018 was a decision of the manager, he suggests.

The Work Plan of 2018<sup>57</sup> on the Social Function of Property of the Municipality of São Paulo confirms the need to review the methodology of implementing PEUC/IPTU progressive in time, with the goal to fill in some gaps regarding deadlines and obligations arising from the service. As stated in the report, the Municipality will conduct a study in order to identify possible obstacles for the proper implementation of PEUC/IPTU progressive in time, given the number of non-compliance of notified properties. When asked about whether there could be possible technical problems with the process, a former public official of the Municipality of São Paulo, stated:

“More than 1300 owners were notified and there were a few recourses and even less cases in the court. Where is the technical problem? We were not perfect, we did some mistakes in 1300 notifications, but there is no technical problem... This (stopping of notifications in 2018) affects the message that you send to the public. When we started implementing PEUC/IPTU progressive in time in 2014, everybody was talking about it, the press, the media, everybody was studying these instruments. Nowadays you don’t hear much about it. How can it be a technical problem? It is the same staff...”

(Interview the initiator of the implementation of PEUC/IPTU progressive in time in São Paulo, a former public official of the Municipality of São Paulo, Field work, 18 July 2018)

<sup>57</sup> Municipality of Sao Paulo, 2017. Annual Report 2017 - Work Plan 2018; Social Function of Property. Sao Paulo: Municipality of Sao Paulo. Available at: [https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/RELATORIO%20CMPU\\_CEPEUC.pdf](https://www.prefeitura.sp.gov.br/cidade/secretarias/upload/RELATORIO%20CMPU_CEPEUC.pdf) [Accessed 05.04.2018].

Management shifts in local governance that are accompanied with political shifts can have a big impact on tax enforcement and jeopardize tax efficiency. As discussed by Salm(2017) in Chapter 2, these changes can create horizontal inequalities between the ones that abide the obligations and the ones that read these political changes as opportunities to escape these obligations.

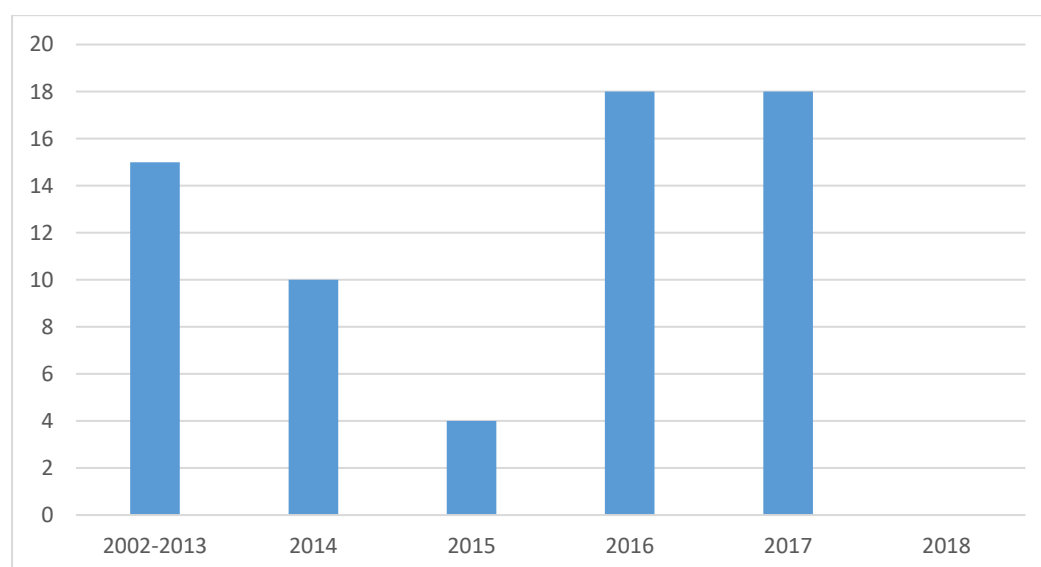
#### 4.2.2.4. Compliance with PEUC and IPTU progressive in time

- Application for building permit

Out of 457 notifications for Vacant land, 436 were done before 1<sup>st</sup> January 2017. This is the population that should have fulfilled their obligations of applying for a building permit until 1<sup>st</sup> January 2018, which is the most recent evaluation of compliance carried out by the municipality (detailed information given in Annex 3).

Notifications for Vacant Land also included cases in which landowners had already applied for a building permit years ago, did not receive a building permit approval from the local authority for different reasons, and interrupted the process of application. There is no information whether these landowners who have applied before 2014, have completed/ renewed their application after having been notified for PEUC/IPTU progressive in time. However, there is information about the building permit applications approved. Therefore, landowners who have applied before 2014 for a building permit, will be considered to have fulfilled their obligation only if they have a building permit approved. This affects the internal validity of the research, since there might be more landowners that have reviewed their application process and are waiting for an approval. But given the lack of information, such assumptions cannot be made.

Every other owner that has applied for a building permit after 2014, whether or not approved, will be considered to have fulfilled his first obligation. The graph below gives a clear picture of the landowners that have fulfilled their obligations imposed by PEUC/IPTU progressive in time:



**Graph 5** Amount of notified landowners that have fulfilled their obligation (Source: Municipality of São Paulo database, graph and interpretation by author)



- Rate of Application for building permit

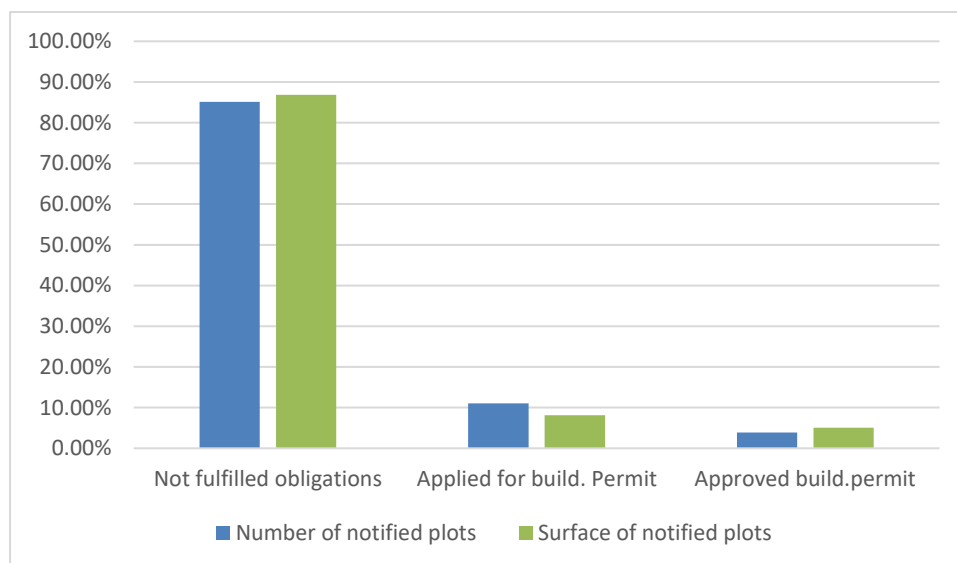
At least<sup>58</sup> 65 out of 436 landowners, hence 14.9%, have fulfilled their obligations so far.

- Approval of building permits

Out of 65 landowners who have fulfilled their obligation to apply for a building permit (or renew their application), the municipality has approved 17 building permits so far. Hence only 26,1 % of applications have been approved so far. The total amount of land with an approved development project is 57,033 m<sup>2</sup>.

The reason behind such a low rate of building permit approvals might be linked to the bureaucracy involved in the approval process. An interviewed public official at the Secretary of Urbanism of Municipality of São Paulo explained that currently it takes at least 1,5-2 years to approve one building permit, and this timeline can be extended to 3-4 years in case of condominiums of more than one building. Acknowledging this problem, the Municipality of São Paulo has launched a new project, called Aprova Rapido<sup>59</sup>, which aims to reduce the deadlines for approval of projects and issue permits between 75 and 130 days. This new system is not operating yet.

In short, compliance with the obligations of PEUC/IPTU progressive in time are summarized in the graph below. The graph shows the percentage of compliance in number of applications and approvals, as well as in terms of surface area of Vacant Land that is subject to a building permit application or have an approved building permit.



**Graph 6 Compliance with the obligations of PEUC/IPTU progressive in time (Source: Municipality of São Paulo database, graph and interpretation by author)**

To summarize, out of 436 notifications of Vacant Land, 11,01% is subject of applications for building permits not approved yet and 3,9% is subject to approved building permits, amounting to almost 15% compliance. In terms of surface area, out of almost 113 ha of notified Vacant

<sup>58</sup> As explained above, there is no information if the applicants before 2014 have reviewed their application. Therefore, from this group, only the ones with approved permits will be considered to have fulfilled their obligation. Hence, at least 122 landowners have fulfilled their obligation, but the number could be higher.

<sup>59</sup> Rapid approval

Land, 8,12% is subject of applications for building permits not approved yet and 5,05% is subject to approved building permits, amounting to 13,17 % compliance.

#### **4.2.2.5. Billing of IPTU progressive in time**

Data regarding the billing of IPTU progressive in time of notified Vacant Land that did not fulfil their Social Function is incomplete and contradictory in some occasions.

According to “List of properties notified due to non-compliance with the Social Function of Property”, only 47 notified Vacant Land have been billed the IPTU progressive in time. This means that out of 371 notified Vacant Land that has not complied yet with their obligation, only 12,6% have been billed the IPTU progressive in time. The reasons why the rest of non-compliant notified Vacant Land has not been billed the tax are not stated.

Amongst 47 distributions of IPTU progressive in time bills, 10 were distributed in 2016 and the rest in 2017. Again, reasons why there was no tax billing in 2018 are unclear. During 2018, all the notified Vacant Land of year 2016 that has not fulfilled their obligations should have been billed. This constitutes 153 notified Vacant Land that did not apply for a building permit yet and 149 notified Vacant Land that has applied for building permit before 2014 and is not clear whether they refreshed/completed their application or not.

Moreover, the total amount of tax calculated for the cases that have been billed has not been published. According to an interviewed Brazilian urban economist and academic, it is an obligation of the local government to calculate and publish the value of the fiscal debt of each property.

Likewise, there is no published information regarding the landowners that have paid their IPTU progressive in time debts and the amount of revenues generated by this instrument. Citing art.173 of the National Tax Code the initiator of the implementation of PEUC/IPTU progressive in time in São Paulo, a former public official of the Municipality of São Paulo, claims that the Finance Department has 5 years to collect their fiscal debt. This regulation is applicable for all types of taxes, including IPTU progressive in time. Therefore, he suggested, as we speak probably there have been no payments of the IPTU progressive in time.

#### **4.2.3. Expropriation with payment in public bonds**

- **Application and Execution**

The third instrument to be used as a tool to encourage the social function of property, introduced in the Constitution, City Statute as well as the Masterplan as discussed earlier, is expropriation with payment in public bonds. This constitutes a moderating variable in this study, as explained in Chapter 3. Therefore, through measuring its impact, this section seeks to isolate its effect to have a clearer understanding of the relation between the Independent and Dependent Variables.

Expropriation is the last instrument that can be used by the local authority, after having imposed the IPTU progressive in time for 5 years. Accordingly, the Municipality of São Paulo can start using this instrument in 2021<sup>60</sup>. So currently its application and execution cannot be measured.

However, it is crucial to understand whether the existence of this instrument impacts the behaviour of landowners. When asked about this, a public official from the Municipality of São Paulo, currently involved directly with the implementation of PEUC and IPTU progressive in time explained that expropriation for this purpose is currently impossible to carry out. She further explained that, as we speak, the main legislation is in place but there are no regulations to enforce this type of expropriation. The expropriation laws are not designed specifically for these cases. A former public official of the Municipality of São Paulo and lawyer pushes this argument further by claiming that expropriations with payments in public bonds cannot be implemented due to limitations deriving from Resolution no 43 of the Federal Senate<sup>61</sup> that prohibits Municipalities to use public bonds as compensation for expropriations. This legal fallacy has been highlighted in an official letter addressed to the senate by the Municipality of São Paulo, but it has not been revised so far.

### **4.3.IPTU progressive in time and land speculation in São Paulo**

So, how has IPTU progressive in time affected land speculation in São Paulo? So far, 15% of the notified vacant land owners have fulfilled their obligations by applying for a building permit; of which 11,01% still have an active application and 3,9% have received an approved building permit. To understand how IPTU progressive in time has affected land speculation, further investigation on what type of land speculation has been affected most has been carried out. Therefore 4 correlation analyses were carried out, between the applications for building permit (Independent Variable) and four indicators of the Dependent Variable: a) the size of plot, b) location of plot, c) other land regulation policies and d) type of landowner.

For all four cases, chi-squared tests of correlation<sup>62</sup> were conducted to analyse whether there is a correlation. The null hypothesis for each case were stated as follows:

H0: Application for building permit is not associated with the plot size

H0: Application for building permit is not associated with the location of plot

H0: Application for building permit is not associated with other land regulation policies

H0: Application for building permit is not associated with the type of landowner

The results of all chi-square tests showed  $p < 0.001$ , rejecting the null hypothesis stated above, and therefore indicating high correlation between application for building permit and 4 indicators of the Dependent Variable<sup>63</sup>.

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<sup>60</sup> The first non-compliant properties are identified in 1<sup>st</sup> January 2016, as explained in Annex 3

<sup>61</sup> Resolution of Federal Senate no 41 of 21 December 2001 Provisions on the internal and external credit operations of the States, Federal Districts and Municipalities, including the granting of guarantees, their limits and authorization conditions, and other measures, 2001. Brasília:

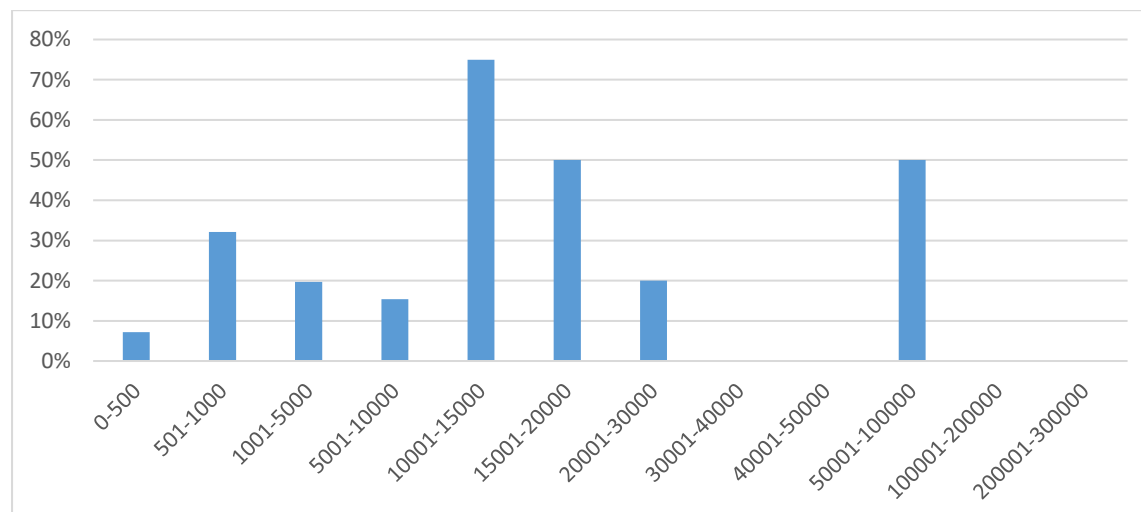
<sup>62</sup> Chi-squared tests were chosen as the most adequate ones to measure the association between two categorical variables. In this case, all indicators involved in this test are categorical.

<sup>63</sup> All the result tables of 4 Chi-squared tests can be found in Annex 4

Afterwards, descriptive statistics are used to understand the type of correlation.

- The size of plot

The graph below shows the % of compliance of notified vacant land according to plot size. The highest compliance is noticed on plots ranging between 10,000m<sup>2</sup> to 20,000m<sup>2</sup>, and 50,000m<sup>2</sup> – 100,000m<sup>2</sup>.



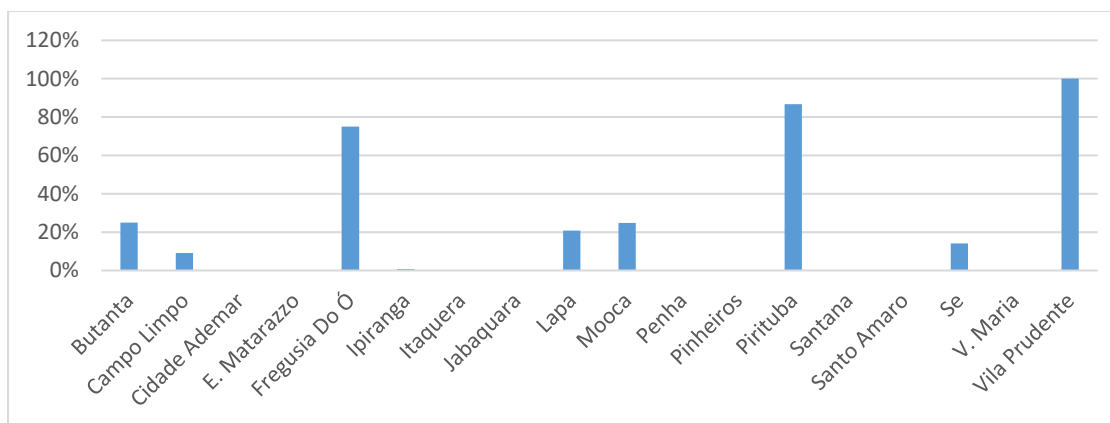
**Graph 7 Percentage of compliance of notified vacant land distributed according to plot size (Source: Municipality of São Paulo database, graph and interpretation by author)**

- Location

Graph 8 shows the percentage of compliance distributed according to the location of the plot notified. As can be seen below, in certain location the percentage of compliance is higher. However, the interpretation of the reasons behind this, might not always be linked to the location. In Vila Prudente for instance, there is only one plot that was notified until 2016 and the owner of this plot has fulfilled his/her obligation to apply for a building permit, making the compliance in this sub-municipality 100 %. The same reasoning can be applied to Fregusia Do O, where 3 out of 4 notified vacant land has complied to the obligations. The high percentage of compliance in Pirituba can be attributed to the fact that all 13 notified vacant land that has complied, out of 15 notified in total, are owned by the same owner<sup>64</sup>.

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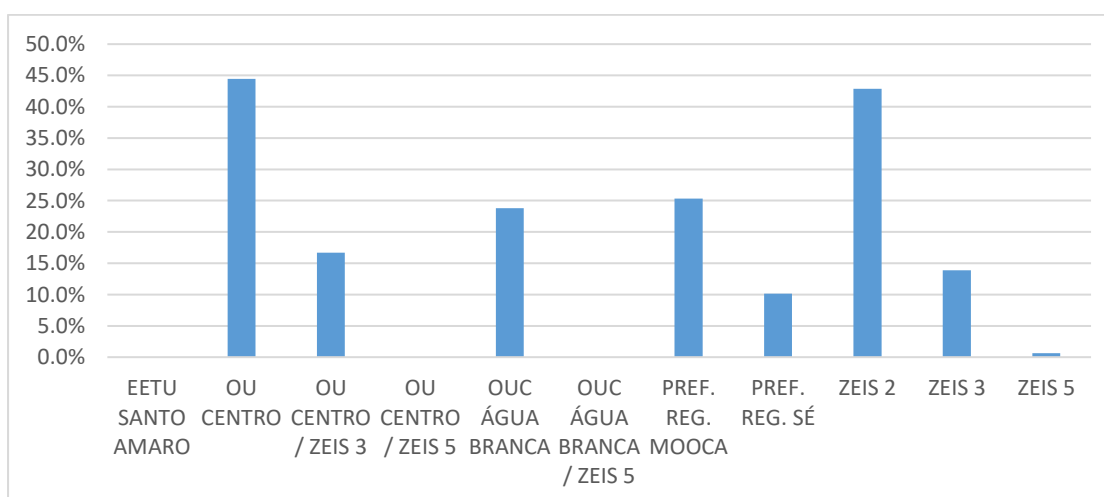
<sup>64</sup> More detailed information can be found in Annex 5



**Graph 8 Percentage of compliance of notified vacant land distributed according to location of plot** (Source: Municipality of São Paulo database, graph and interpretation by author)

- Other land regulation policies

Graph 9 shows the percentage of compliance distributed according to existence of other land policy regulations. This graph shows for higher compliance in areas subject of Urban Operations, such as Urban Operation Centre and Urban Operation Agua Branca, as well as in areas subject to ZEIS 2 and 3. Notified Vacant Land in areas declared as ZEIS 5 seem to have a lower compliance. One of the reasons behind this is the fact that a large amount of notifications, 132 out of 160 notifications, belong to one owner. This owner has applied for a building permit before 2014 but there is no information on whether they completed/refreshed their application, and are considered as non-compliant in this study, for reasons explained above. Further investigation is required to understand how ZEIS 5 regulations might affect the compliance with IPTU progressive in time.



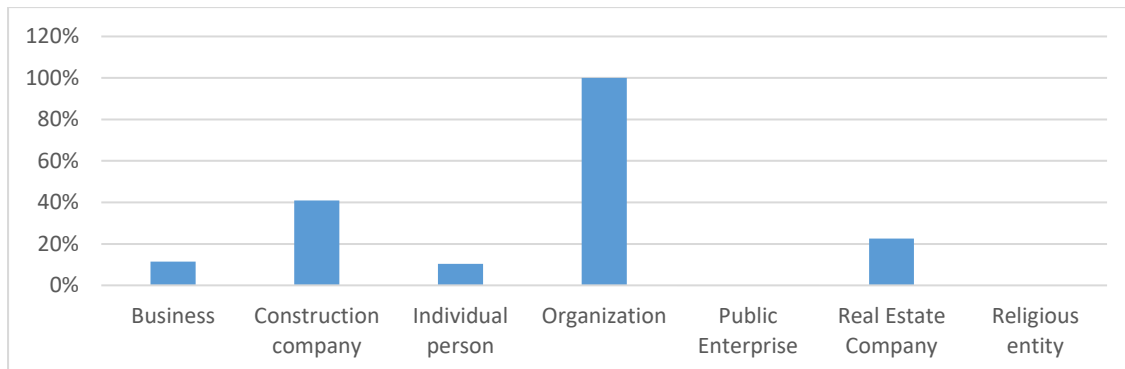
**Graph 9 Percentage of compliance of notified vacant land distributed according to combination with other land policies** (Source: Municipality of São Paulo database, graph and interpretation by author)

- Type of landowner

The most important element when analysing compliance with IPTU progressive has resulted to be the landowner. Percentages of compliance in specific locations are largely influenced by

the fact that considerable amounts of notified Vacant Land in that location is owned by the same owner. Therefore, the action of one owner, in applying for a building permit, impacts the compliance of several plots of vacant land notified.

The level of compliance of organizations is 100% because 2 out of 2 notified vacant land fulfilled their obligation. In the remaining pool of landowners, the ones with the highest compliance are Construction Companies and Real Estate Companies. It can be argued that their advantage of knowing the real estate market and having easier access to professionals/ partners that can assist them in complying with their obligations, and hence apply for a building permit, could be one of the reasons why their compliance is higher than amongst other types of actors.



**Graph 10 Percentage of compliance of notified vacant land distributed according to landowner (Source: Municipality of São Paulo database, graph and interpretation by author)**

## **Chapter 5: Conclusions and recommendations**

Fast urbanization has often been accompanied with great social inequalities and detrimental effects on environment, due to mismanagement of natural resources. Recognizing the role of land speculation on urban sprawl and on increasing land prices, resulting in unaffordable housing markets for some fractions of society, some public authorities have adopted land value taxation as an instrument to discourage land speculation. The academic and political debate on whether land value taxation can discourage land speculation is still unsettled. Therefore, this study sought to investigate how land value taxation affects land speculation analysing the case of São Paulo, where one form of land value taxation, IPTU progressive in time, is being implemented since 2014. This research has been approached by first trying to elaborate an analysis on land speculation in São Paulo, the dependent variable, and evaluating the efficiency with which IPTU progressive in time, the independent variable, has been implemented so far. Finally, the main research question has been addressed.

### **5.1. Conclusions**

#### **5.1.1. Conclusions on Land Speculation in São Paulo**

Five main elements of land speculation were analysed to answer the first research sub-question “How is land speculation manifested in a megacity such as São Paulo?”. The conclusions of this analysis provide a description of how land speculation is manifested in São Paulo, as follows:

Firstly, land speculation is manifested in different land sizes depending on the location. In the consolidated urban area, land speculation takes the form of several small sized plots, sharing borders with one another, owned by the same landowner. This is the reason why more than half of the notifications of Vacant land (266 out of 457 notifications) referred to plots smaller than 500m<sup>2</sup>, mostly located in the consolidated urban area of São Paulo. As Widdis (1979) suggests, referring to the experience of land speculation in Ontario during 1835-1840, land speculation can be reflected with smaller scale land holdings given a more advanced development stage of the city. Similarly, large landholdings are present in the abandoned industrial sites or land in the periphery which is yet undeveloped or surrounded by informal/irregular developments.

The second conclusion is related to the location of land that is subject to speculation. In the city of São Paulo, land speculation is present in the city centre, in peripheral areas and in former industrial sites, on different scale and for different reasons. The spatial manifestation of land speculation in São Paulo stems from urbanization and land market dynamics during the last century in the city. Reasons behind land speculation in the city centre and consolidated urban areas surrounding it can be explained through Contemporary Urban Location Theory and the relocation of the Central Business District of the city. Shifting of the new CBD to Avenida Paulista, and again to Faria Lima and av.Luis Carlos Berrini, caused a decline in real estate prices in the traditional city centre of São Paulo. This represented an optimal moment for land speculators to invest in this area, buying property at low prices, and for original landowners to withhold their land from the market, with the expectations that the area will be regenerated in the future, as one interviewed expert suggests. Ely’s (1920) definition of land speculation refers to investments in vacant land located in districts where its future value is expected to grow.

Eventhough currently deteriorated, the city centre of São Paulo has locational advantages and therefore “situation value” (Marshall, 1920), and is in the agenda of urban regeneration projects of the Municipality, as one of the four Urban Operations. This suggests for higher expected future values of land from current landowners.

Land speculation in the periphery of the city is manifested in two different ways: inside informally developed areas or in former industrial sites. In the first case, changes in legislation during the ‘40s that sought to increase homeownership amongst the middle class and low-income groups resulted in increased demand for housing, making the market inside the urbanized area unaffordable for lower income groups, which in turn, moved to the periphery, where they could afford housing in the informal market. These new developments in the periphery resulted in scattered patterns with vacant land in the vicinity. As Alonso (1964) suggests, growth or its expectation, impacts the behaviour attributed to speculators in urban expansion area.

The decline in the quality of life, both in the traditional city centre and in these peripheral developments has led the Municipality of São Paulo to declare many of them as Special Zones of Social Interest (ZEIS), where only social housing can be built. This is why, 83% of notified Vacant Land is in areas declared as Zeis 2, 3 and 5.

The second case, vacant land in former industrial areas, remained vacant when industrial uses moved to more remote areas during ‘50s-‘80s in São Paulo. This is the case of Agua Branca, which was declared Urban Operation area in 1995. During the last year, the Municipality has been reviewing the Urban Operation of Agua Branca, where more than 10ha of notified Vacant Land is located. These revisions aim to introduce new measures to facilitate development in this area. The expectation for such facilitations could be one of the reasons behind land vacancy in this area.

The third conclusion has to do with the provisional use of land that is subject to speculation, and its implications. 15% of the notified Vacant Land has a provisional use. This provisional use is typically parking, or storage space serving another bordering land use. As Shoup (1970) suggests, landowners of idle land might introduce temporary uses to land to generate an interim income.

The fourth conclusion is related to landownership. The pattern of landownership indicates of a situation similar to that of Market Power described by Mills (1980), since 66% of surface area the notified Vacant Land is owned by Real Estate Companies or owners of such companies. Understanding the impact of Market Power as a slowing agent for the pace of land development (Mills, 1980), contributes to a better understanding of the reasons behind land idleness in São Paulo. The rest of the notified Vacant Land is owned by other individual landowners (15%), other types of businesses (10%), public enterprises (6%), construction companies (2%), organizations (1%) and religious entities (less than 1%).

Finally, vacant land makes up 62% of the surface area of the notified land that does not comply with its Social Function in the Municipality of São Paulo. The rest is Under-utilized land, which one interviewed academic refers to as “*Second generation land speculation*”. Following Hawley's (1950) rationale, it is important to understand that land speculation can manifest itself not only in the form of vacant land but also in the form of underdeveloped land in areas where a change in land use is expected inside the urbanized area. However, analysing to what extent “Under-utilized” land in São Paulo falls under this category of land speculation needs further exploration and research.



### **5.1.2. Conclusions on the Implementation of IPTU progressive in time in São Paulo**

Four main components of land value tax efficiency were evaluated to answer research sub-question 2 “How efficient was the implementation of IPTU progressive in time in São Paulo?”. A summary of the findings, and the answer of the research sub-question 2 are presented as follows:

IPTU progressive in time is efficient in terms of encompassing a wide tax base. The assessment of the tax base is carried out adopting a Capital Value assessment approach which is a recommended approach also by literature (Bird and Slack, 2004). Exemptions included only activities that do not require edification. Therefore, vacant land that can be subject of land speculation does not benefit any type of exemption. Individual vacant land plots smaller than 500m<sup>2</sup> are exempted from this instrument, however this does not have a considerable impact on the tax’s efficiency, given the scale of the operation, the megacity of São Paulo. Finally, IPTU progressive in time can be imposed on vacant land, increasing its efficiency as a tool to discourage land speculation.

The tax rate is a progressive one, which doubles for every year that the notified owner fails to fulfil his/her obligations. The rate starts at 2% and increases up to 15% in the 5th year. This tax rate is significant, if we compare it to other countries where Vacant Land tax is applied.

Findings show that the efficiency of application of IPTU progressive in time decreased due to this tax’s governance and administration. The latest update of the fiscal cadastre dates from 2012, and these values are actualized yearly through the application of approximation coefficients. In the long run, this method might cause discrepancies between market values and cadastral values. The method of identification of the database is thorough, followed by an efficient notification process. The biggest challenges in terms of this tax’s implementation are faced when it comes to the consistency of enforcement. The rate of notifications has dropped dramatically after the local elections in 2017, and in 2018 only 4 notifications for Vacant Land were delivered, while currently the Municipality has undertaken a revision of PEUC/IPTU progressive in time. Moreover, information regarding tax billing is incomplete and contradictory. The existing data shows that during the year 2018 there has been no billing of IPTU progressive in time. This could mean that the owners of Vacant Land notified in 2016 who failed to fulfil their obligations, which compose the biggest part of the landowners notified, have not been billed with a progressive IPTU. While the reasons remain unclear, this is closely linked to the consistency of the tax enforcement, the lack of which might jeopardize the whole process. Moreover, the National Tax Code allows the Finance Departments of public institutions up to 5 years to collect their fiscal debts; a concession that can weaken furthermore the enforcement of IPTU progressive in time.

To sum up, while the tax base and rate design indicate for an efficient land policy tool, inconsistencies in terms of its application, linked to governance and administration, have impaired this tax’s efficiency.

“...because there is a pressure from the owners and developers against these instruments. It is very difficult for the mayor to implement these legislations.

The administration is important! If there is no political will then nothing can be done. Instruments are important, but you need people wanting to use them. They need to commit to use them. Because the legislation here says that the administration may use them, they are not obliged to do it. In São Paulo they have used them, but some mayors might not be interested...”

(Interview with Brazilian urban economist and academic, Field work, 12 July 2018, São Paulo)

### **5.1.3. How does land value taxation affect land speculation – conclusions on the main research question**

To be able to measure the effect of land value taxation on land speculation, an effective taxation policy should be in place and carried out. Unfortunately, IPTU progressive in time has not been implemented consistently during 2014-2018, therefore the research could not conclude with substantial findings on the impact of the independent variable on the dependent variable.

So far, at least 15% of the notified vacant land owners have fulfilled their obligations by applying for a building permit. Eventhough limited, this impact can be attributed to the IPTU progressive in time, facilitated by PEUC. It can be argued that, because of IPTU progressive in time, almost 30 ha of land is subject of a building permit application, of which 5.7 ha has an approved building permit and can now begin development. The effect of the moderating variable, expropriation with payments in public bonds, has been isolated since this instrument is currently inapplicable due to legal constraints. On the other hand, it is almost impossible to completely isolate the effect of other spurious factors that might affect land development, such as the effect of real estate market and economic growth. But it is plausible to conclude that the landowners of 30 ha of land that has been vacant for years, decided to apply for a building permit within one year after receiving the notification, because of the pressure exerted from IPTU progressive in time. The analyses also show that this instrument has been mostly efficient with land owned by Real Estate Companies and Construction Companies, which have the means to develop the land as a result of a tax pressure.

Nevertheless, the relatively short time-period under study (2014-2018) which was disrupted even more by a reduced application in 2017 and almost complete suspension in 2018, hinders further analyses and conclusions. Such an interruption not only results in less properties notified and therefore a smaller study sample, but can also have a retroactive effect, giving the wrong message to owners that have been notified before this disruption.

“But in terms of combating speculation, when there is interruption, all the process of the economic agents that were prepared and mobilized during these two years, goes to zero. If they restart, it is like restarting from zero. Because it has a cumulative effect.”

(Interview the initiator of the implementation of PEUC/IPTU progressive in time in São Paulo, a former public official of the Municipality of São Paulo, Field work, 18 July 2018)

## **5.2.Relevance of the main findings**

### **5.2.1. Contributions to the policy discourse in São Paulo**

Currently the Municipality of São Paulo is reviewing the methodology of application of PEUC/IPTU progressive in time. While some argue that this decision is political, policy discourse should be advanced by professionals and researchers, based on tangible findings. Therefore, findings of this research seek to contribute to this policy debate. Eventhough the findings are preliminary and limited because of the short time of the implementation of PEUC/IPTU progressive in time, some of these findings presented in this Chapter indicate of an impact of IPTU progressive in time on land speculation. Recommendations presented below are based on these findings and contribute to a better understanding of these instruments and their application, and to how they can be utilized to push forward the social agendas of city managers.

“It’s a political decision but these are not political instruments. They are instruments of state, and they have been in our legislation since 1988. They are not instruments for a kind of government, they are instruments for a kind of city”

(Interview the initiator of the implementation of PEUC/IPTU progressive in time in São Paulo, a former public official of the Municipality of São Paulo, Field work, 18 July 2018)

### **5.2.2. Contributions to the academic discourse on land speculation and land value taxation**

The question of whether land value taxation can affect land speculation is not a simple “yes” or “no” type of question. One of the most important findings of this study suggests that the degree to which land value taxation can impact land speculation, depends on the design and implementation of the former and the nature of the latter. A land value tax that lacks the adequate tax base identification and assessment or an adequate tax rate or good administration and enforcement most probably would not have an impact on land speculation. Henceforth, the current academic discourse on how land value taxation affects land speculation and the divergences between Henry George and his proponents’ thinking and the current views on land value taxation, are based on many distinctions between the nature of land speculation and the nature of land value tax involved (Dye and England, 2010).

Oates and Schwab(1997) argue that when vacant land is taxed for its highest and best use value, the amount of tax is the same whether the land is developed or not, hence independent of the timing of its development, making its effect neutral in this respect. However, they refer to a flat tax rate. A progressive tax rate in time on vacant land is designed specifically to make the distinction between developing now, and hence avoiding the progression of the rate in time, and developing later, while being subject of a progressive tax rate, like the case of São Paulo. Moreover, an adequate identification of the tax base, hence the land that is subject to speculation, is necessary.

## **5.3.Lessons learnt and Recommendations**

Concluding remarks on the lessons learned and recommendations are presented as follows:

Identification of land subject to speculation requires a strategic methodology. Since the manifestation of land speculation is very context-related, there are no golden rules of standards that are applicable everywhere, but some overall considerations can be useful in different contexts:

- Adopting a “scale of operation” approach can be an effective way to identify speculative behaviour. However, it should not only focus on sizable plots but also identify smaller adjacent plots of land with the same landowner.
- In megacities, such as São Paulo, it is impossible to tackle all land speculation at once. Thus, a workplan of intervention should be elaborated, by identifying priority areas. The identification of these areas should be in line with the overall development strategy of the city, giving priority to areas where urban transformation is on the agenda or where the municipality is seeking to promote land development to ensure economic and social sustainability.

Building on the experience of the Municipality of São Paulo, certain elements of land value taxation require special attention, during its design and implementation as a tool to discourage land speculation:

- São Paulo can be considered a positive case study in terms of their ability to identify the tax base, avoid exceptions that would decrease the tax's efficiency and imposing a progressive rate over time which impacts the timing of land development and therefore speculation
- Special attention should be devoted to tax governance and administration. Land value tax, when used as an instrument to discourage land speculation, succeeds on cumulative effects, therefore consistency in its implementation and time is required. While improvements and adjustments along the way are necessary, it is important that they are carried out without interfering with the overall implementation of the tax. These interruptions can jeopardize the whole process, make it less reliable, less efficient and can have a retroactive effect by delivering the wrong message also to landowners that are subject of the tax, and therefore decreasing compliance rates.
- Similarly, a transparent tax billing and collection system should be in place. Delays in the tax billing and collection process can affect the behaviour of notified landowners. Since the purpose of this tax is not to generate revenues but rather to induce a behaviour, fiscal debt collections in longer periods of time, such as 5 years in the case of São Paulo, can delay the change in behaviour. When this aspect is also combined with inconsistent implementation of the tax, incidence of non-compliance can increase due to flexibility in paying the tax and expectations that the instrument might be suspended or cancelled altogether.
- Support mechanisms, such as the case of Real Estate Consortiums, are necessary to support landowners that might not be able to develop land or sell it within the defined timelines. These support mechanisms reinforce the idea that this type of tax, even though punitive in nature, seeks to promote the social function of property rather than merely punish land speculators or landowners of idle land.
- The effects of the combination of this tax with other land policies should be analysed and requires further research. For instance, in cases where other land policies seek to promote social housing, such as the case of ZEIS in São Paulo, application of this tax can result in more social housing produced. However, superimposition of different policies can sometimes generate added difficulties in implementation, therefore further research and considerations are required.
- As with many other urban policies, even with land value taxation transparency is very important. Providing a transparent process since the first steps of the tax's implementation and throughout the whole process, increases its acceptability from the citizens and promotes higher accountability from public authorities.

This research has analysed the impact of a type of land value taxation, IPTU progressive in time, over a period of less than 5 years (2014-2018). However, a deeper understanding of the potential impact of this instrument can be achieved if this study is carried out again after some years, allowing for a larger implementation of the instrument and for the required time to measure its effects. Also, more research is needed on land speculation and land value taxation in other contexts, expanding the knowledge on these subjects and advancing the academic debates related to it as well as policy recommendations.

“It is true that many of the largest fortunes are made by speculation rather than by truly constructive work: and much of this speculation is associated with anti-social strategy, and even with evil manipulation of the sources from which ordinary investors derive their guidance. A remedy is not easy and may never be perfect...In many other ways evil may be lessened by a

wider understanding of the social possibilities of economic chivalry. A devotion to public wellbeing on the part of the rich may do much, as enlightenment spreads, to help the tax-gatherer in turning the resources of the rich to high account in the service of the poor, and may remove the worst evils of poverty from the land”

(Marshall, 1920, p.412)

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## Annex 1: On regulations regarding Special Zones of Social Interest, Housing of Social Interest - HIS and Housing of Popular Market – HMP

Housing of Social Interest - HIS and Housing of Popular Market – HMP are the housing typologies allowed to be developed in areas declared as ZEIS. The tables below describe the parameters of development and the type of housing allowed in each type of ZEIS (Law nr. 16 050 of 31 July 2014 Urban Development Policy and Masterplan Strategy of the Municipality of São Paulo, 2014)

ZEIS	Coefficient of approval		
	Minimum	Basic	Maximum
ZEIS 1	0,5	1	2,5 (a)
ZEIS 2	0,5	1	4
ZEIS 3 <sup>65</sup>	0,5	1	4
ZEIS 4	NA	1	2
ZEIS 5	0,5	1	4

The table below shows the total percentage of constructed area divided for each Residential and Non-Residential use.

Type of ZEIS	HIS 1	HIS 2	HMO	R and N-R use
ZEIS 1,2,3,4	Minimum 60%	Allowed	Maximum 20%	
ZEIS 5	Minimum 40%		Allowed	Maximum 40%

Characteristics of HIS and HMP as defined by Decree no 56 759 of January 2016:

- **HIS:** housing unit, having at most one toilet and one parking space, destined for low income families, is classified into two types:
  - HIS 1: intended for families with a monthly family income of up to R \$ 2,172.00 (452 €) or per capita income of up to R \$ 362.00 (75 €)
  - HIS 2: intended for families with a monthly family income exceeding R \$ 2,172.00 (452 €) or 362.00 (75 €) per capita and equal to or less than R \$ 4,344.00 (905 €) or R \$ 724.00 (150 €) per capita;
- **HMP:** housing unit, having at most two toilets and up to one parking space, intended for the care of families with a monthly family income exceeding R \$ 4,344.00 (905 €) and equal to or less than R \$ 7,240.00 (1,509 €).

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<sup>65</sup> In Urban Operation Centre, the Coefficient of Approval is Minimum 1 and Maximum 6

## Annex 2: Additional information on Section 4.1

Sub-Municipality	No.Notifications	Total surface area of notified Vacant Land (m <sup>2</sup> )	Average surface area/plot of notified Vacant Land (m <sup>2</sup> )
Butanta	12	310,910	25,909
Campo Limpo	13	96,175	7,398
Cidade Ademar	6	11,580	1,930
E. Matarazzo	18	9,128	507
Fregusia Do Ó	4	8,774	2,194
Guaianases	4	2,781	695
Ipiranga	133	103,286	777
Itaquera	1	263,991	263,991
Jabaquara	3	6,789	2,263
Lapa	24	113,490	4,729
Mooca	102	88,538	868
Penha	4	22,080	5,520
Pinheiros	1	643	643
Pirituba	15	116,970	7,798
Santana	3	8,067	2,689
Santo Amaro	4	9,395	2,349
Se	105	63,638	606
V. Maria	4	94,000	23,500
Vila Prudente	1	15,642	15,642

**Table 5 Location of Notified Vacant Land according to their location (Source: Municipality Database, table elaborated by the author)**

Location	Surface area	Owner	Cadastre price/ m2
ZEIS 5	263,991	Real estate company	R\$ 352
ZEIS 2	121,883	Individual - Owner of real estate corporation	R\$ 131
ZEIS 2	98,911	Individual - Owner of real estate corporation	R\$ 534
ZEIS 2	62,885	Business	No info
ZEIS 2	48,400	Real Estate Company	R\$ 319
ZEIS 2	46,195	Public Enterprise	R\$ 247
ZEIS 2	32,573	Individual - Owner of real estate corporation	R\$ 267
ZEIS 2	30,840	Real Estate Company	R\$ 271
UO Água Branca	29,738	Individual - Owner of industrial Corporation	R\$ 1,326
ZEIS 2	27,000	Individual - Owner of Financing Corporation	R\$ 196
Highest Land Prices: Av. Paulista	NA	NA	Average R\$ 24,000

Table 6 Owners of the 10 largest plots of notified Vacant Land

## Annex 3: Additional information on Section 4.2

Areas where IPTU progressive in time can be applied

- Special Zones of Social Interest (ZEIS 2, 3, and 5);
- The perimeter of Urban Operation Center;
- In the influence area of Urban Transformations
- In the perimeter and expanded perimeter of Consociated Urban Operations
- In the perimeter of Sub-Municipalities of Sé and Mooca;
- In the Macro-areas of Consolidated Urbanization and Qualification of Urbanization;
- In the Macro areas of Urban Vulnerability Reduction - exclusively for land or lots with an area greater than 20,000m<sup>2</sup>;
- In all areas of the urban perimeter, defined in the Map in Annex 2, in which the IPTU does not apply, with the exception of the areas actually used for agricultural exploitation, livestock, extractive crops or agro-industrial and the exceptions provided in the other articles of the Master Plan

All these areas where IPTU progressive in time can be implemented are shown in different colours in the map below:

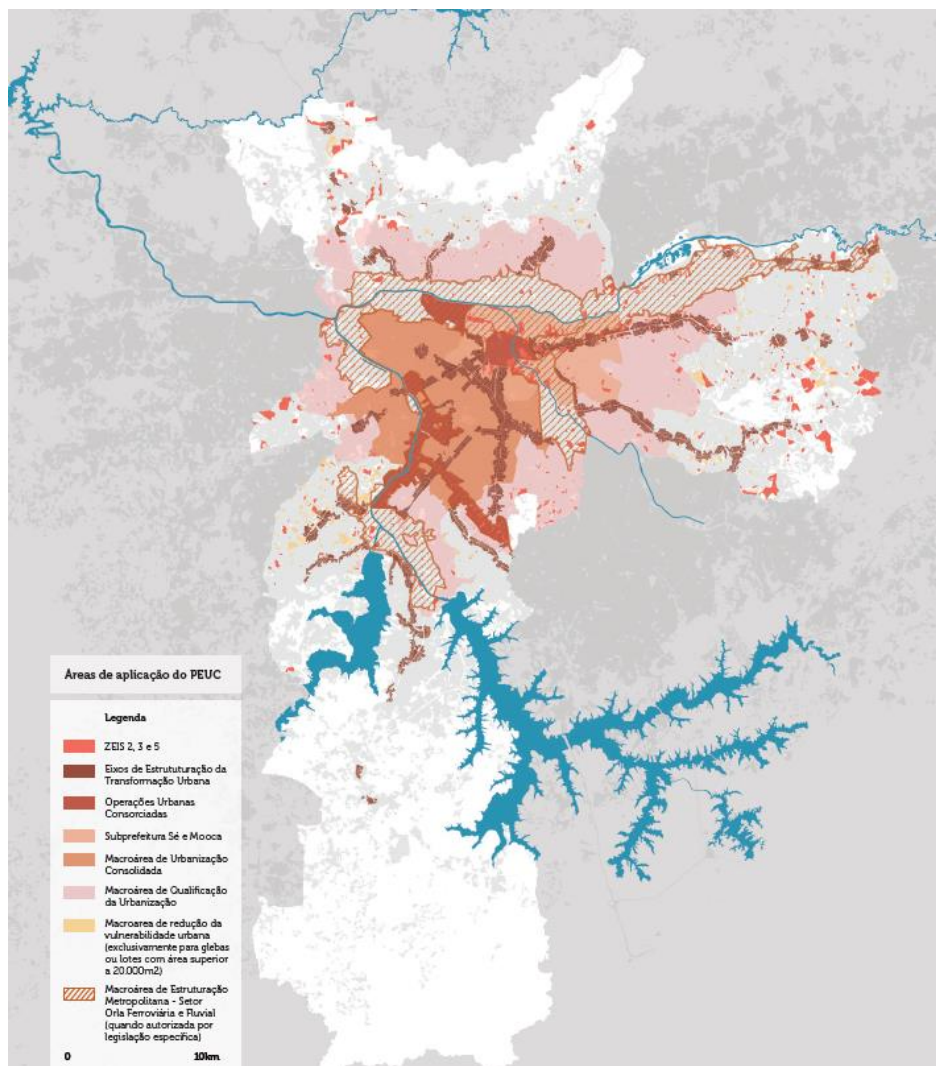


Figure 14 Areas where IPTU progressive in time can be applied in the Municipality of São Paulo (Source: Masterplan of Municipality of São Paulo, 2014)

## International Experience with tax on vacant urban land

Place	Tax Base and Definition of Land Subject to Extra Levies	Tax Rates
Harrisburg, and about 20 jurisdictions in Pennsylvania, United States	Split rate property taxation: tax on land applied to all properties, plus tax applied on improvements of built-up properties	Land: 3% of assessed land value Improvements: 0.5% of assessed value of improvements
Seoul, Korea, Rep.	Surtax on vacant properties: Land left vacant for a minimum of two years is subject of higher tax than the 2% property tax on improved lots.	5% if left vacant for 2-3 years 7% if left vacant for more than 3 years 8% if left vacant for more than 5 years 9% if left vacant for more than 7 years 10% if left vacant for more than 10 years
Marikina City, Philippines	Extra levy: Land area greater than 1,000 square meters, one-half of which unimproved Residential lots, regardless of land area, one-half of which remains unutilized or unimproved	Additional levy at the rate of 2.5% per year on the assessed value of the property
Bogotá, Colombia	Zoning: Land that is subject to urbanization but has not yet been developed, and land that has already been urbanized but has had no construction yet	In 2004: Vacant properties = 1.2–3.3 percent of the assessed value. For improved properties in urban areas, rates from 0.4% (residential use) to 1.5% (financial institutions) Today: vacant urban land rate is 30%
Washington DC United States 2017	Extra levy: Regular property tax Vacant Land Property Blighted/ruined property	0.83% on assessed market value 5.0% on assessed market value 10% on assessed market value
Seattle Washington State USA	Parking Lot tax	12.5% extra tax on parking lots since 2010 Plans to increase rate to 17.5% in 2017
Vancouver, British Columbia, Canada	Surtax: Empty homes tax 2017	Surtax of 1 percent on any residence that is not considered the owner or a renter's "primary residence".

**Table 7 International experience with tax on vacant urban land (Source: (Haas and Kopanyi, 2017))**

Number of notifications	Year of Notification	Deadline for Applying for building permit	Date of monitoring from Municipality		
24	2014	2015	01-Jan-16	} Population evaluated for compliance	
82	2015	2016	01-Jan-17		
330	2016	2017	01-Jan-18		
17	2017	2018	01-Jan-19		
4	2018	2019	01-Jan-20		

**Table 8** Obligation deadlines and selection of the population for evaluating compliance with PEUC/IPTU progressive in time

## Annex 4: Results of Chi-square test

- Location

### Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
HAVE APPLIED FOR PERMIT? * WHERE IS THE PROPERTY LOCATED	457	100.0%	0	0.0%	457	100.0%

HAVE APPLIED FOR PERMIT? \* WHERE IS THE PROPERTY LOCATED Crosstabulation

			WHERE IS THE PROPERTY LOCATED																		VILA MARIA/VILA GUILHERME	VILA PRUDENTE	Total
			BUTANTA	CAMPO LIMPO	CIDADE ADEMAR	ERMELINO MATARAZZO	FREGUESIA DO O	GUAJANASES	IPIRANGA	ITAQUERA	JABAQUARA	LAPA	MOOCA	PENHA	PINHEIROS	PIRITUBA	SANTANA	SANTO AMARO	SE				
	HAVE APPLIED FOR PERMIT?	YES	Count	5	1	0	0	3	0	133	0	0	7	33	2	0	14	1	0	20	0	1	220
		Expected Count	5.8	6.3	2.9	8.7	1.9	1.9	64.0	.5	1.4	11.6	49.1	1.9	.5	7.2	1.4	1.9	50.5	1.9	.5	220.0	
		Residual	-8	-5.3	-2.9	-8.7	1.1	-1.9	69.0	-5	-1.4	-4.6	-16.1	.1	-5	6.8	-4	-1.9	-30.5	-1.9	.5		
		Count	7	12	6	18	1	4	0	1	3	17	69	2	1	1	2	4	85	4	0	237	
	Expected Count	6.2	6.7	3.1	9.3	2.1	2.1	69.0	.5	1.6	12.4	52.9	2.1	.5	7.8	1.6	2.1	54.5	2.1	.5	237.0		
	Residual	.8	5.3	2.9	8.7	-1.1	1.9	-69.0	.5	1.4	4.6	16.1	-1	.5	-6.8	.4	1.9	30.5	1.9	-.5			
	NO	Count	12	13	6	18	4	4	133	1	3	24	102	4	1	15	3	4	105	4	1	457	
	Expected Count	12.0	13.0	6.0	18.0	4.0	4.0	133.0	1.0	3.0	24.0	102.0	4.0	1.0	15.0	3.0	4.0	105.0	4.0	1.0	457.0		
Total	Count	12	13	6	18	4	4	133	1	3	24	102	4	1	15	3	4	105	4	1	457		
Expected Count	12.0	13.0	6.0	18.0	4.0	4.0	133.0	1.0	3.0	24.0	102.0	4.0	1.0	15.0	3.0	4.0	105.0	4.0	1.0	457.0			

## Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	254.071 <sup>a</sup>	18	.000
Likelihood Ratio	328.697	18	.000
Linear-by-Linear Association	37.892	1	.000
N of Valid Cases	457		

a. 22 cells (57.9%) have expected count less than 5. The minimum expected count is .48.

- Size of plot

#### Case Processing Summary

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
HAVE APPLIED FOR PERMIT?	457	100.0%	0	0.0%	457	100.0%
* AREA_ORDINAL						

#### HAVE APPLIED FOR PERMIT? \* AREA\_ORDINAL Crosstabulation

			AREA_ORDINAL												
			0 - 500	501 - 1000	1001 - 5000	5001 - 10000	10001 - 15000	15001 - 20000	20001 - 30000	30001 - 40000	40001 - 50000	50001 - 100000	100001 - 200000	200000 - 300000	Total
HAVE APPLIED FOR PERMIT?	YES	Count	164	27	16	5	3	1	2	0	0	2	0	0	220
		Expected Count	128.1	43.8	31.8	6.7	1.9	1.0	2.9	1.0	1.0	1.0	.5	.5	220.0
		Residual	35.9	-16.8	-15.8	-1.7	1.1	.0	-.9	-1.0	-1.0	1.0	-.5	-.5	
	NO	Count	102	64	50	9	1	1	4	2	2	0	1	1	237
		Expected Count	137.9	47.2	34.2	7.3	2.1	1.0	3.1	1.0	1.0	1.0	.5	.5	237.0
		Residual	-35.9	16.8	15.8	1.7	-1.1	.0	.9	1.0	1.0	-1.0	.5	.5	
Total		Count	266	91	66	14	4	2	6	2	2	2	1	1	457
		Expected Count	266.0	91.0	66.0	14.0	4.0	2.0	6.0	2.0	2.0	2.0	1.0	1.0	457.0

#### Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	57.267 <sup>a</sup>	11	.000
Likelihood Ratio	61.802	11	.000
Linear-by-Linear Association	17.997	1	.000
N of Valid Cases	457		

a. 16 cells (66.7%) have expected count less than 5. The minimum expected count is .48.



- Other policies of land regulation

#### Case Processing Summary

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
HAVE APPLIED FOR PERMIT? * OTHER LAND POLICIES INVOLVED	457	100.0%	0	0.0%	457	100.0%

#### HAVE APPLIED FOR PERMIT? \* OTHER LAND POLICIES INVOLVED Crosstabulation

			OTHER LAND POLICIES INVOLVED								
			EETU SANTO AMARO	OU CENTER	OU AGUA BRANCA	REGIONAL MUNIC. MOOCA	REGIONAL MUNIC. SE	ZEIS 2	ZEIS 3	ZEIS 5	Total
HAVE APPLIED FOR PERMIT?	YES	Count	0	9	7	21	12	26	11	134	220
		Expected Count	.5	17.3	11.6	35.1	31.3	27.4	18.8	78.0	220.0
		Residual	-.5	-8.3	-4.6	-14.1	-19.3	-1.4	-7.8	56.0	
	NO	Count	1	27	17	52	53	31	28	28	237
		Expected Count	.5	18.7	12.4	37.9	33.7	29.6	20.2	84.0	237.0
		Residual	.5	8.3	4.6	14.1	19.3	1.4	7.8	-56.0	
Total		Count	1	36	24	73	65	57	39	162	457
		Expected Count	1.0	36.0	24.0	73.0	65.0	57.0	39.0	162.0	457.0

#### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	129.947 <sup>a</sup>	7	.000
Likelihood Ratio	139.515	7	.000
Linear-by-Linear Association	87.444	1	.000
N of Valid Cases	457		

a. 2 cells (12.5%) have expected count less than 5. The minimum expected count is .48.

- Landowner

#### Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
HAVE APPLIED FOR PERMIT? * OWNER OF PROPERTY	457	100.0%	0	0.0%	457	100.0%

#### HAVE APPLIED FOR PERMIT? \* OWNER OF PROPERTY Crosstabulation

			OWNER OF PROPERTY							Total
			PUBLIC ENTERPRISE	INDIVIDUAL/ NATURAL PERSON	BUSINESS/ JURIDICAL PERSON	REAL ESTATE COMPANY	RELIGIOUS ENTITY	CONSTRUCT ION COMPANY	ORGANIZATI ON	
HAVE APPLIED FOR PERMIT?	YES	Count	0	161	11	33	0	13	2	220
		Expected Count	4.3	123.7	34.2	44.8	1.4	10.6	1.0	220.0
		Residual	-4.3	37.3	-23.2	-11.8	-1.4	2.4	1.0	
	NO	Count	9	96	60	60	3	9	0	237
		Expected Count	4.7	133.3	36.8	48.2	1.6	11.4	1.0	237.0
		Residual	4.3	-37.3	23.2	11.8	1.4	-2.4	-1.0	
Total	Count	9	257	71	93	3	22	2	457	
	Expected Count	9.0	257.0	71.0	93.0	3.0	22.0	2.0	457.0	

#### Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	72.290 <sup>a</sup>	6	.000
Likelihood Ratio	81.281	6	.000
Linear-by-Linear Association	6.719	1	.010
N of Valid Cases	457		

a. 6 cells (42.9%) have expected count less than 5. The minimum expected count is .96.

## Annex 5: Characteristics of notified Vacant Land compliant to obligations of PEUC/IPTU progressive in time

Same landowner	Landowner	Location	Other land policy regulations	Surface
Same owner 1	Business/juridical person	Freguesia do ó	Zeis 2	533
Same owner 1	Business/juridical person	Freguesia do ó	Zeis 2	540
	Business/juridical person	Freguesia do ó	Zeis 2	513
	Business/juridical person	Mooca	Ou centro	568
	Business/juridical person	Ipiranga	Zeis 2	62885
	Business/juridical person	Sé	Pref. Reg. Sé	951
	Business/juridical person	Sé	Pref. Reg. Sé	616
	Business/juridical person	Sé	Pref. Reg. Sé	750
Same owner 2	Construction company	Mooca	Ou centro	270
Same owner 2	Construction company	Mooca	Ou centro	380
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	150
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	150
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	159
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	180
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	240
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	180
Same owner 3	Construction company	Mooca	Pref. Reg. Mooca	258
	Individual/natural person	Sé	Zeis 3	279
	Individual/natural person	Mooca	Pref. Reg. Mooca	3243

	Individual/natural person	Mooca	Pref. Reg. Mooca	671
	Individual/natural person	Mooca	Zeis 3	2186
	Individual/natural person	Mooca	Pref. Reg. Mooca	1640
	Individual/natural person	Mooca	Pref. Reg. Mooca	9460
	Individual/natural person	Lapa	Ouc água branca	5754
Same owner 4	Individual/natural person	Pirituba	Zeis 2	851
Same owner 4	Individual/natural person	Pirituba	Zeis 2	976
Same owner 4	Individual/natural person	Pirituba	Zeis 2	843
Same owner 4	Individual/natural person	Pirituba	Zeis 2	615
Same owner 4	Individual/natural person	Pirituba	Zeis 2	500
Same owner 4	Individual/natural person	Pirituba	Zeis 2	782
Same owner 4	Individual/natural person	Pirituba	Zeis 2	788
Same owner 4	Individual/natural person	Pirituba	Zeis 2	428
Same owner 4	Individual/natural person	Pirituba	Zeis 2	613
Same owner 4	Individual/natural person	Pirituba	Zeis 2	700
Same owner 4	Individual/natural person	Pirituba	Zeis 2	596
Same owner 4	Individual/natural person	Pirituba	Zeis 2	527
Same owner 4	Individual/natural person	Pirituba	Zeis 2	480
	Individual/natural person	Mooca	Pref. Reg. Mooca	1000
	Individual/natural person	Sé	Ou centro	742
	Individual/natural person	Lapa	Ouc água branca	29738
	Individual/natural person	Sé	Zeis 3	429

	Individual/natural person	Sé	Zeis 3	1140
	Organization	Mooca	Zeis 3	4039
	Organization	Lapa	Ouc água branca	14230
	Real estate company	Sé	Pref. Reg. Sé	510
	Real estate company	Sé	Ou centro	4119
	Real estate company	Mooca	Pref. Reg. Mooca	2100
	Real estate company	Mooca	Ou centro	209
	Real estate company	Butantã	Zeis 2	13585
	Real estate company	Sé	Pref. Reg. Sé	720
	Real estate company	Lapa	Ouc água branca	2000
	Real estate company	Sé	Pref. Reg. Sé	570
	Real estate company	Vila prudente	Zeis 2	15642
	Real estate company	Mooca	Pref. Reg. Mooca	400
	Real estate company	Mooca	Pref. Reg. Mooca	1199
Same owner 5	Real estate company	Butantã	Zeis 2	4233
Same owner 5	Real estate company	Butantã	Zeis 2	12883
	Real estate company	Mooca	Pref. Reg. Mooca	552
	Real estate company	Campo limpo	Zeis 5	3966
Same owner 6	Real estate company	Sé	Ou centro / zeis 3	600
Same owner 6	Real estate company	Sé	Ou centro	585
Same owner 6	Real estate company	Sé	Ou centro	495
	Real estate company	Lapa	Ouc água branca	3080
Same owner 7	Real estate company	Mooca	Pref. Reg. Mooca	250
Same owner 7	Real estate company	Mooca	Pref. Reg. Mooca	250

## **Annex 6: Interview questions (semi-structured)**

**MSc Programme in Urban Management and Development**

Rotterdam, The Netherlands

**Thesis Title: Land value taxation and land speculation; the case of São Paulo, Brazil**

**Interviewee:** \_\_\_\_\_

**Date:** \_\_\_\_\_

### **GENERAL**

- 1- Can you please state your name and current job position?
- 2- What has been your involvement with progressive IPTU in general and in the city of São Paulo specifically?

### **REGARDING PROGRESSIVE IPTU**

- 1- Can you briefly explain how the progressive IPTU was involved as part of the Master Plan? What were the initial discussions?
- 2- Can you please explain how the instrument works?
  - a. How are the priority areas chosen?
  - b. How does the notification occur? Is it difficult to identify the owners and notify them?
  - c. How is the progressive IPTU enforced?
  - d. Is the implementation of the instrument monitored by the municipality?
- 3- What are the exception cases, that might fulfil the criteria to be subject of progressive IPTU, but are exempted?
- 4- The Master Plan introduces the progressive IPTU as a tool to discourage land speculation. In your opinion, how efficient has this tool been so far?
- 5- How often are the values of properties in São Paulo reassessed for tax purposes?
- 6- Generally, how fast does development of land occur after the notification?
- 7- Do these notifications affect the development behaviour of vacant land that is nearby, but has not been notified yet?
- 8- Progressive IPTU is accompanied with Compulsory Subdivision, Building and Use. What is the role of each of these instruments? Can one be applied without the other?
- 9- Vacant land that does not get developed within the timeline foreseen by law, 5 years, gets expropriated? Are there cases in which it has happened?
- 10- Which one of the instruments do you think is the one that encourages mostly development in vacant land?

## REGARDING LAND SPECULATION

- 1- Progressive IPTU and the other two instruments were designed to encourage the fulfilment of the social function of property. Do you think, land speculation inhibits the fulfilment of the social function of property and how?
- 2- Is the phenomenon of land speculation very present in São Paulo?
- 3- What are the most common forms of land speculation that can be observed?
- 4- Who speculates? (Patrimonial landowners, real estate developers/investors, the state?)
- 5- The Master Plan of 2014 has specified certain areas of the city where the instruments that promote the social function of property can be applied. Why is that? How were these areas identified?
- 6- The Master Plan of 2014 specifies that it considers vacant land (imóveis não edificadas) plots of land that are serviced with basic infrastructure over 500m<sup>2</sup>. Why does the definition refer to this size?
- 7- Are there other instruments that encourage land development for vacant plots that are smaller than 500m<sup>2</sup>?
- 8- How often is the Master Plan reviewed? Are there plans of land use changes in areas where land speculation is more prominent?

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