

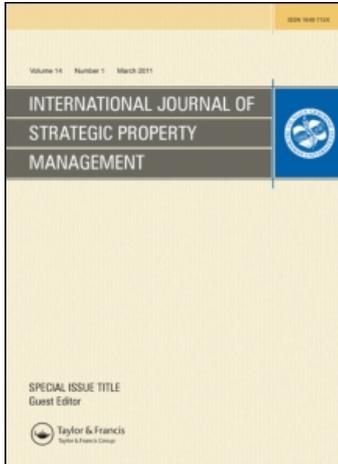
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### Land value tax in the context of sustainable urban development and assessment. Part i - policy analysis and conceptual model for the taxation system on real property

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## Regular Paper

# LAND VALUE TAX IN THE CONTEXT OF SUSTAINABLE URBAN DEVELOPMENT AND ASSESSMENT. PART I – POLICY ANALYSIS AND CONCEPTUAL MODEL FOR THE TAXATION SYSTEM ON REAL PROPERTY

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**ABSTRACT.** This article on issues related to real property taxes has two parts. Part One deliberates the concept of sustainable development as well as Lithuania's real property taxation system and possible ways to improve it. Part Two analyses various methods of land assessment. The objectives of this paper are to analyze the importance of a tax on real property within the taxation system of Lithuania and to plan the implementation of such a reform in the future. A tax on land is presented as one alternative for a reform of the taxation system on real property in Lithuania.

**KEYWORDS:** Sustainable urban development; Land value tax; Model for real property taxation system in Lithuania

## 1. INTRODUCTION

For many years, taxes are the main source of revenue for every state for its vitality and implementation of its functions. In particular property taxation has the oldest history and, without it, many states, including Lithuania, would not be able to manage in today's world.

Taxes are an essential component of national development. They not only facilitate social development but they are also the main source of national income. Real property taxes are among the oldest types of taxes, and countries would not be able to exist without them today

either. It is an excellent source of revenue for any municipality for cultural, educational, social and other public needs.

## 2. THE CONCEPT OF SUSTAINABLE DEVELOPMENT AND THE REAL PROPERTY TAX

Sustainable development primarily invokes the concept of ecological sustainability, one which was presented in the World Conservation Strategy. A broader concept of sustainable development was presented in *Our Common Future*, published by the World Commission on

Environment and Development (WCED, 1987), known as the Brundtland Report. Sustainable development (sustainability) is understood as meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development is a transformation process whereby economic progress is a combination of social and cultural changes enabling individuals to realize their full potential.

The main concept of sustainable development was adopted at the World Summit – the United Nations Conference on Environment and Development – in Rio de Janeiro in 1992. The action plan, “Agenda 21”, which implements sustainable development, and the declaration of the main principles regarding sustainable development were also adopted in Rio de Janeiro. Sustainable development was validated as the main, long-term ideology for social development. The concept of sustainable development rests on three components of equal value: environmental protection, economic development and social development. Sustainable development is perceived as a compromise among environmental, economic and social goals of humanity; it enables achievement of universal welfare for current and future generations within allowable limits regarding the effect on the environment. Implementation of a sustainable development policy is one of the most complicated tasks and challenges faced by the global community. The efforts to move the concept of sustainable development from a theoretical level to a decision-making level and to link economic development to the environment involve a number of problems (Burinskienė and Rudzkiene, 2009; Jakimavičius and Burinskienė, 2009).

Sustainable development in construction involves understanding how the construction of buildings better meets human and environmental needs. Sustainability of construction is defined as a conflict between criteria. The challenge is to find an optimal solution

based on such indicators. Multicriteria assessment methods are normally applied for resolving this issue (see Šijanec Zavrl et al., 2009; Mickaitytė et al., 2008; Ginevičius et al., 2008; Zavadskas et al., 2008a).

Planners in a rapidly urbanizing area must take into account the trade-offs between multiple environmental issues of concern (Mehaffey et al., 2008). They examined changes to environmental and socio-economic factors across the region for two, contrasting alternative, future scenarios of land use development and found that development of “compact centers” with relatively high density resulted in improved environmental quality in most counties due to lower land consumption. An article by Lee and Jou (2007) examines how a policy-maker should choose a density ceiling and how the parameters of underlying demand and technology affect an optimal policy. Landowners will develop property more densely than is socially optimal, but a regulator can correct this by imposing a density ceiling control. A regulator should force developers to develop less densely when (1) land development becomes less risky, (2) developmental costs are expected to grow rapidly and (3) rents of undeveloped land are lower.

In 2002 the World Summit on Sustainable Development in Johannesburg admitted to the fact that the progress of sustainable development had not been speedy after the meeting in Rio de Janeiro; therefore all countries were asked to prepare their national sustainable development strategies in 2002 and to develop effective mechanisms for the implementation of these strategies. On 2003 September 11, the Government of the Republic of Lithuania approved the National Strategy for Sustainable Development (Lietuvos Respublikos Vyriausybė, 2003). Its priorities are:

- moderate and sustainable industries and regional economic development,
- reduction of social and economic disparities between regions and within regions while retaining their identities,

- reduction of effects on the environment by the main economic sectors (transport, industry, energy, agriculture, housing and tourism),
- more efficient use of natural resources and waste management,
- reduction of risks to human health,
- mitigation of global climatic change and its impact,
- better protection of biodiversity,
- better protection of landscape and rational management,
- an increase of employment and decrease of unemployment, poverty and social exclusion,
- enhancement of the role of education and science,
- retention of Lithuanian cultural identity.

Since transition economies experience more unexpected developmental issues than the EU does, there are more sustainable development priorities for Lithuania. In particular, given the relatively low economic development level of transition economies and the significant transformational recession, sufficiently fast and stable economic growth is necessary for the success of sustainable development in Lithuania. In the Lithuanian economy, the long-term strategy for economic development by the year 2015 is to provide scenarios for sustainable development in terms of the preferred baseline scenario that provides a 5-6% annual GDP growth rate.

The implementation of this strategy is meant to spur the economic growth of Lithuania to the current, average level of economic development in the EU by 2020. Slow economic growth would not achieve the basic objective of sustainable development, and rapid economic growth would pose too high a risk of environmental pollution, a risk which is already increasing. Thus a moderate, sustainable agricultural sector and regional economic development are the priorities for the sustain-

able development of Lithuania. On 2009 September 16, the Government of the Republic of Lithuania decided to change its National Strategy for Sustainable Development.

In 1993 the European Commission defined urban sustainability as a challenge which solves both the internal problems of cities and the problems caused by cities, admitting that cities themselves offer a range of potential solutions (Faludi, 2007). Municipal policy makers must seek to satisfy social and economic needs of urban residents considering natural systems on local, regional and global levels and to solve problems, when possible, on-site instead of transferring them elsewhere or leaving them for future generations. This idea gave birth to the concept of “elastic cities” defined as the employment of aggressive annexation strategies that result in more effective planning control over a city-region, higher population increases, stronger tax bases and healthier urban-regional economies than those of “non-elastic” cities (Meligrana, 2007).

Meanwhile the most important reasons for a real property tax is the need for more rational use of land resources and structures, property rights and the assurance that assets accrue to owners who are able to use them most effectively. Such a tool allows revival of the real property market and leads to the divestment of the existing real property ownership by those who do not pay a tax and who do not use it maximally or best. In addition the tax is to eliminate, or at least significantly limit, the purchase of property for speculative purposes.

### 3. LITHUANIAN SYSTEM OF REAL ESTATE TAXES

Currently the main real estate taxes in Lithuania are:

- real property tax,
- land tax,
- land lease tax,
- inherited property tax.

The object of the **real property tax** is real property located within the Republic of Lithuania for commercial use (e.g., for hotel accommodations, administrative, trade, services, food services and such uses) belonging to natural or legal persons, as per the right of ownership. Meanwhile real estate for residential, summer cottage, green-house gardening, auxiliary uses and other purposes as specified by law is only taxed when its use is for economic or individual purposes or when it is transferred to legal persons for use for an indefinite period or for a period exceeding one month (Lietuvos Respublikos nekilnojamojo turto mokesčio įstatymas, 2005). The tax rate is between 0.3% and 1% of the taxable value of real property. Municipal councils establish the specific tax rate by the first of June of the current taxation period. Municipal councils may also establish several specific tax rates which are differentiated by one or several of the following criteria: purpose of the real property, its technical maintenance condition, taxpayer category (size, legal form or social status) and the location of real property within the municipality's territory (as per priorities established in strategic and territorial plan documents).

The average market value of real property is considered its taxable value. Meanwhile the taxable value of engineering structures and other types of real estate are established by the cost method for its restoration. The assessment model used for this purpose is a mathematical formula for calculating the average market value of real property in a particular real estate assessment zone in consideration of real estate cadastral indicators. Real estate designated for residential, summer cottage and garage (except industrial) use is assessed according to comparative value (selling price analogies) method applying the mass property evaluation procedure. The taxable value of real estate can be established by performing an individual assessment of the real estate regardless of the case of assessment for which the

assessment report had been prepared. Taxpayers may request the real property tax assessor to consider the taxable value of the real property established by its individual assessment as its value in the event the real property's average market value which was established by the mass real property assessment differs from the real property's value established by conducting the individual assessment by more than 10%.

The law foresees a number of tax benefits. The real property belonging to natural persons by the right of ownership is not taxed when it is used for production of goods required for religions, social care and welfare and agricultural operations when the income from such operations are not taxable as per the Law on the Income Tax of Individuals of the Republic of Lithuania. The income from real property taxes is part of the budget for the municipality where the real property is located. The law regarding this came into force on 2006 January 1 and replaced the Law on the Tax on the Immovable Property of Enterprises and Organizations of the Republic of Lithuania.

**The Law on the Tax on the Immovable Property of Enterprises and Organizations** was passed on 1994 July 20 (Lietuvos Respublikos įmonių ir organizacijų nekilnojamojo turto mokesčio įstatymas, 1994). Taxpayers included legal persons owning real property in the Republic of Lithuania. The object of the tax was real property located in the territory of the Republic of Lithuania belonging to legal persons as per the right of ownership, excepting land, aircrafts and ships. The tax rate was 1% of the real property's taxable value. Since the end of 1997, the taxable value of real property was determined by taking the cost-value (considering only physical depreciation) and multiplying it by local correction coefficients established by the resolutions passed by the Commission for Assessment of Property that Must be Registered. Such an assessment procedure was valid until the expiry of this

law. It was determined by Resolution No. 244, “On Property Assessment Methodology”, of the Government of the Republic of Lithuania (Lietuvos Respublikos Vyriausybė, 1996). The Central Mortgage Office, a State institution, conducted asset assessments. An assessment was valid for five years in the event the consumer price index did not exceed 1.25% per calendar year. The tax was payable within 25 days after the end of the quarter in the sum of one-quarter of the annual assessed amount. This tax revenue belonged to the municipality of authority in the location of the real property.

The object of **land tax** is privately owned land (Lietuvos Respublikos žemės mokesčio įstatymas, 1992) and its owners are the taxpayers. The annual land tax rate is 1.5% of the land price (the price of forestry land does not include the value of its trees). The exemptions to the land tax are common roads, land belonging by right of ownership to diplomatic and consular offices of foreign countries and certain types of forestry land. The Government of the Republic of Lithuania grants tax benefits to land with protected forest areas, environmentally protected areas and special natural, historical and cultural sites. Municipal councils have a right to reduce the land tax or to grant an exemption at their own expense.

The base of the land tax is the value of the land (body of water) established by the 1999 February 24 Government Resolution No. 205, “On Land Assessment Procedures” (Lietuvos Respublikos Vyriausybė, 1999). The basic value of a land lot is determined by the scope of agricultural productivity calculated by taking the normative value of one hectare of agricultural land and multiplying it by the total parcel area and the correction coefficients that assess the territory’s socio-industrial potential as well as an entire set of urban, ecological and land use aspects, limitations on agricultural activities and environmental pollution, an addendum on engineering structures and others. Thus the

tax is based on an index-linked, nominal land value which does not account for the market value of the land. The average market value of land which was established by a mass assessment in 2007 was about five times greater than the index-linked, nominal land value.

In most countries, the taxable value of land value tax is established on the basis of market value. A tax base grounded on market value is justified by an active real estate market in transition countries as well, where such property is often bought for speculative purposes. A land tax base formulated in accordance with market value has a number of advantages:

- The public understands it.
- Social acceptability because owners of the more valuable land pay higher taxes and of less valuable land – lower taxes.
- Ease of control because taxpayers, when in doubt concerning the correctness of an assessment, are able to verify it by an individual assessment or by a comparing it with analogical properties.
- It better informs the public about the market.
- It prevents speculative transactions.
- It encourages market activity.
- It encourages efficient land use.
- It permits forecasts of future changes in the tax base.

**Law on Leasing of Land of the Republic of Lithuania** was ratified on 1993 December 23 (Lietuvos Respublikos žemės nuomos įstatymas, 1994). This law was amended numerous times prior to its expiry. Under this law, as per a land lease agreement, a leaser is obligated to allow temporary use of land to a lessee, and the lessee is obligated to use the leased as stipulated by the agreement and by law and to pay the tax on the land lease.

Under the 2003 November 10 Resolution by the Government of the Republic of Lithuania, “On Land Lease for Use of State Land”, the annual rate for leasing land is between 1.5% and 4% of the land’s value. Municipal councils

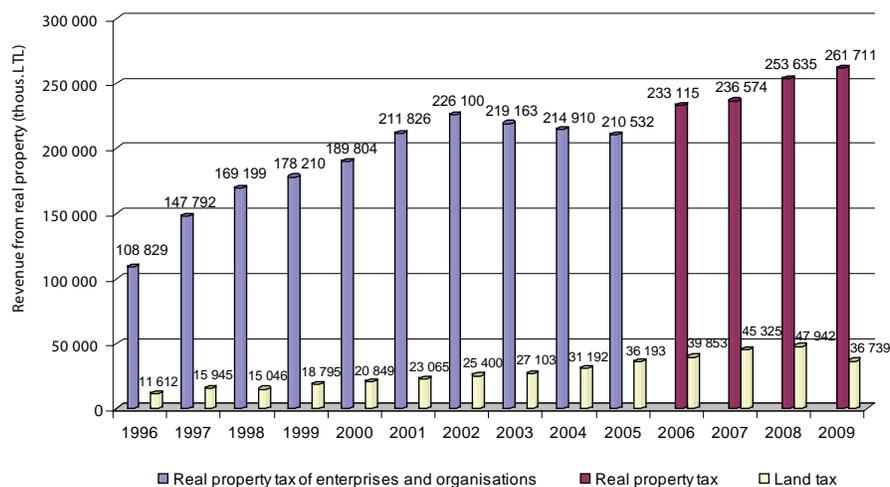
oversee leased state lands within their corresponding territories, establish the specific rates for leasing land and inform users of state lands thereof.

Currently the rate for leasing state land is based on an index-linked, nominal land value calculated under the land assessment methodology approved by the Government, which does not assess land based on market values. The Government approved a new land assessment procedure which came into force in 2009, and now mass assessment will be used to calculate the rate for leasing state land in the event such a lease is not by virtue of an auction. Thus the rate for a lease will be based on the average market value of the land as per land value maps. The average market value of land determined by mass assessment is about five times greater than the index-linked, nominal land value is. To buffer the impact on taxpayers, the lower limit on a land lease was changed from 1.5% to 0.1%; thereby municipalities will be able to select any tax rate between 0.1% and 4%.

Inherited property taxes are paid by individuals. The tax object is the inherited property of a permanent resident of Lithuania (Lietuvos Respublikos paveldimo turto mokesčio įstatymas, 2002). The tax object of a non-permanent resident of Lithuania is inherited movable property in cases when legal registration of such an item is required by the legal acts of the Republic of Lithuania. Such an item is (or must be) registered in Lithuania, the same as an immovable item that is located in the Republic of Lithuania. The tax base is the taxable value of inherited property calculated as established by the Government of the Republic of Lithuania. The tax is a percent of the taxable value of the inherited property. The rates are:

- 5% when the taxable value of the inherited property does not exceed 500,000 LTL.
- 10% when the taxable value of the inherited property exceeds 500,000 LTL.

The analysis on the collection of real property taxes in Lithuania over a 14-year period leads to conclude that increasing amounts of this tax are being collected and that obvious growth is detected (see Figure 1). Revenue from the land tax within this period increased by 4.13 times, i.e., from 11,612 million LTL to 47,942 million LTL. Revenue from the real property tax also grew about 2.33 times during this period, i.e., from 108,829 million LTL to 253,635 million LTL. However, revenue from the latter tax was decreasing between 2002 and 2006 until a new type of real property tax replaced the real property tax for companies and organizations. These amounts decreased by some 6.9%. Replacement of the real property tax for companies and organizations by the new type of real property tax was not very effective, even though mass assessment was already being used to calculate average taxable market values. Compared to 2005, the 2006 revenue from this tax only increased by 9.7% and, in 2007, it only increased by a few million from the previous year, totaling 236.574 million LTL. Although there were 7.6% more buildings and 7.6% more non-residential buildings registered in the Real Estate Register in 2007 compared to 2005, the amount of collected real estate taxes only increased by 12.4% in 2007 compared to 2005. It is also common knowledge that real estate prices were rapidly growing throughout Lithuania. However, the income from taxes did not increase in proportion to the increasing values. Although the accuracy of assessments did improve once the mass assessment procedure was introduced, the right that the law provided to municipal councils to establish specific tax rates from 0.3% and 1% of the taxable value of real property or to grant complete tax exemptions did not lead to the assurance of a constant and stable growth of tax revenues. The land tax indicates the opposite situation, even though the taxable value of land is based on the older method which does not reflect market value.



**Figure 1.** Revenues from real property taxes in Lithuania in 1996-2009\*, (2009 data is for 10 months, January - October)

Therefore this tax needs to be analyzed more thoroughly. It is important to note that, during ten months of 2009, the taxes collected from real property were 3.18% more than they were in 2008.

#### 4. EFFECTS OF THE LAND VALUE TAX

Land has a unique and substantial impact on the business system as a whole and on personal life as well. When considering humankind in general, land has significant value because it is the only place for all the nations and generations to live. Moreover land is a fundamental and natural factor in any area of business, taking a direct or indirect part in the production of all goods and services (Dietrich and Dietrich, 1997). Land is different from other productive resources because it is immobile, and its content is constant. Land is a finite natural resource even though the resource may change over time and under management and use conditions. Land is there, not because it is produced but because it is natural. Of course the number of land parcels can

vary depending on political decisions, planning provisions and owner needs. Nonetheless, land remains a finite resource. Land is also unique in that no two identical sites exist; therefore an appropriate labor and capital analysis does not apply to land.

Arising from human needs, economic activities have an impact on land resources by creating competition and conflicts and allowing non-optimal use of both land and land resources. In order to enable meeting future human requirements sustainably, it is important to resolve these conflicts now and move forward towards much more efficient use of land and its natural resources. However, to reach this, environmental, social and economic problems must be taken into account. The article by Jou and Lee (2008) deals with models of land value taxes and buildings taxes. Developed properties reduce open space, thereby harming urban residents, and landowners will develop properties sooner than is socially optimal. A regulator can correct this tendency by imposing a positive tax on development or a negative tax on land value. Alternatively a regulator can

implement both instruments simultaneously in which case an increase in the tax rate on development will be accompanied by an increase in the tax rate on land value and vice versa. In 1995 Wisconsin (USA) changed its agricultural land assessment policy from market assessment to use-assessment. The result was a significant reduction in property tax burdens for agricultural landowners. The goal of this legislation was to protect Wisconsin's farm economy and curb urban sprawl by reducing the costs of retaining fringe land for agricultural purposes.

The analysis of real property taxes enables claiming that taxation of both land and buildings inhibits investment (Josten, 2000). In addition the assessment for taxation purposes of buildings that have different purposes, conditions, ages and such demands considerable expenses. However, the main idea for having the land value tax is to eliminate the relation between land and building and to tax only the land.

The land value tax will be the most beneficial only when landowners pay it personally. When such taxes can be imposed on users or lessees or included in the price, the owners are not encouraged to make better and more efficient use of the land. Transfer of the land tax occurs when a landowner (taxpayer) imposes the tax burden on a lessee who, in turn, must bear the tax burden, for example, by paying a higher rent. Then the land tax also becomes less effective. If a tax transfer is not possible, then the owner bears the tax burden. Potential buyers will calculate (capitalize) the tax into the price proposed for the land plot. Consequently the price will be higher. In a perfect case, a reduction of land plot value corresponds to the capitalized amount of land tax (Forster, 2000).

Land value tax influences (Zavadskas et al., 2005):

1. Territorial planning;
2. Use of land sites for construction;

3. Fiscal policy;
4. Land prices;
5. Urban development;
6. National economy;
7. Social aspect;
8. Environmental protection.

Municipalities lack funds for infrastructure costs in residential areas; thus they are not able to assign land for property development. The land value tax might improve funding for urban construction because it is due for payment from the moment of construction planning, regardless of construction progress. The land value tax might make planning more neutral. Introduction of the land value tax will be capitalized, and land prices will fall. This would lead to lower value increases that are determined by planning and lower profits for those owners who hold their land merely in expectation of increased future value brought by planning. Thus the impact of vested interests on territorial planning solutions would be limited, and planning would become more objective.

Land intended for construction very often stands unused or underused, because the expenses of uneconomical use are not obvious. In this case, the land value tax has a positive impact, because the steady payment of it establishes the expenses of incomplete land use. This is especially true in the case of owners who fail to use their land due to unawareness or other reasons. Land use would be improved, because the land value tax is based on land value as well as on possible income in some particular territory.

Unused land is often held merely as a capital investment. The land value tax might cause owners to change their behaviors because it reduces income from unused or underused land. Higher taxes would be imposed on empty land (without buildings) or underused land. Hence ownership of land merely expecting a future increase in its value would become less profitable. Additionally regular land reassessments

would help to tax value increases as well (Lefmann and Larsen, 2000).

Determination of land tax values, i.e., market values, is more accurate than any type of mass assessment of buildings. Moreover expenses related to the calculation of land value tax would be considerably lower than they would be in case of the real property tax. Land tax has the important advantages of transparency and accountability. In particular, if land value increases due to governmental activities, there is a strong justification for recovering at least some of those costs by means of taxing the land component.

Urban land management is a fundamental matter of local public policy, and good land management should be fostered and supported as a core skill that a local government must have. This skill has great implications on all operations by the local government (Kaganova et al., 2008). Kassahun (2006) has shown that differential land taxation (DLT) should be applied for sustainable land management where rural lands are subject to different taxation rates. Polyakov and Zhang (2008) analyzed the effect of property taxes on changes between agricultural, forestry, the Conservation Reserve Program and developed land uses in Louisiana and showed that land-use changes are inelastic with respect to property taxes.

The effects of a land value tax depend on the applied rate (Josten, 2000). Higher rates provoke more reactions to the tax. The land value tax causes a greater supply of land sites intended for construction, because most owners try either to better use their underused land or to sell it. A tax system that imposes higher taxes on land puts pressure on owners to make more productive use of their land. If the tax system can create a built-in inducement, year in and year out, for better use of land, it will be an advantage. Such a mobilization effect will only remain while underused land is available or while new land sites are allocated for construction. This tax would have

a greater effect on land demand in terms of pricing. Due to increased maintenance expenses, the land value tax should reduce the demand for land earmarked for construction. Then such a tax will increase land supply and reduce land demand; thus lower prices can be expected. Land prices will not start increasing only if municipalities continue allocating land sites for construction to satisfy the demand. However, if municipalities reduce the amount of land sites allocated for construction in reaction to the land value tax, the supply will decrease and the prices will start rising once again.

The land value tax helps to fight against land profiteering. Although it does not eradicate this problem, it does mitigate the situation. "Appropriation" of value growth partly defeats the main reason for profiteering, namely, the profits from rising prices. A land value tax will ensure that infrastructure costs will be attributed to their users thus supporting equitable urban planning. Long-term capital investment in land is no longer as attractive, because it would also reduce land speculation. The land value tax encourages landowners to use the possibilities legalized by territorial planning and to use their land with economic expedience and efficiency. Also, in such a way, land will be mobilized for property development, and old industrial areas will inevitably be updated. The land value tax would impose a greater burden on empty land sites than the real property tax would. Therefore faster construction processes would be encouraged in newly allocated land sites for construction and in land sites that are empty as of yet.

Upon introduction of a land value tax, the maximum density and intensity of development would be established for each land site as currently being done. Increased use of a land tax poses significant problems. In particular an accurate assessment of land can be challenging, although statistical and econometric techniques may help address this in

the future. A second concern is that more intensive use of land value taxation will lead to denser development, exacerbating many of the problems associated with congestion. These effects must be weighed against the positive benefits of reducing long-distance commuting. A third problem concerns equity. Owners whose property has a high land/improvement ratio will face an increased tax liability. Such a shift might be mitigated by adjustments to the tax rate, special exemptions or targeted tax credits.

The land value tax also contributes to the maintenance of buildings and reconstruction for obtaining potential gains over a long period of time. Of course it may happen that buildings which are very good in terms of construction but economically unprofitable could be demolished sooner than usual and new ones built.

Increased land use intensity as determined by a land value tax will reduce the demand for land sites for new construction. Growing rates of the real property tax actually cause an increase in the size of an urban area which, in turn, determines urban development. Thus replacement of the real property tax with the land value tax will slow down urban development (Brueckner, 2001). In particular the demand for extensively used land will decrease. Owners of land sites in valuable urban locations who receive little income from their land will be encouraged to move to less valuable sites and may increase the demand for suburban land for property development.

The land value tax, in contrast to many other taxes, is not "imposed" on income and profit from private economic activities. On the contrary, buildings and investments remain untaxed. The land value tax also improves distribution of the production factor, i.e., the land. Thus investments are supported. Meanwhile the intensity of capital related to land use increases thus making a positive impact on the entire national economy. The land component of property value is a potential source

of revenue for encouraging economic development (Chapman and Facer II, 2005). Since the supply of land is fixed in the short run, an increase in a land tax will not affect the tax base. However, it will encourage more intensive use of the land and may slow urban sprawl. For example, Pittsburgh USA restructured the tax on land to be five times more than that on improvements in 1979-1980. Building activity showed a dramatic increase, although other factors may have contributed to this change as well. Pittsburgh later returned to a single-rate property tax system.

The land value tax, as said, pledges an increased land supply and reduced demand making it easier to buy property. Investors who appear in the land market after introduction of land tax will practically not notice the tax when buying a lot of land, because the prices on lots of land prices will not rise. The land value tax will reduce the tax burden on effectively used sites. Moreover, even in the event that the burden of the tax on a lot of land does increase, rental prices will not rise by much. Therefore the lessees will not suffer the tax burden. The tax burden will fall on the leaser, because the lessee will not be prepared to pay a rent increase due to the tax.

The land value tax supports intensive land use as well as environmental endeavors to reduce residential land use. Extensive use of land for residential and business purposes will become more expensive. However, Korthals Altes (2009) proposes taxes on building in green spaces which may be an instrument for balancing urban growth and the protecting the landscape. This article discusses a development tax in the context of other planning instruments. An article by Geoghegan (2002) finds that the preservation of open spaces has become an important policy topic in many regions of the USA. One tool of such a policy along with Cluster Zoning and transferable development rights are land taxes to fund purchases of remaining open spaces. Numerous communities

in the United States have been willing to use public funds to protect open spaces (Nelson et al., 2007). Factors that increased the probability of a municipality holding an open space referendum from 2000 to 2004 were a large population, low population density, rapid growth in the surrounding areas and highly educated and environmentally-concerned residents.

The land tax will make it economically expedient to reduce areas of used land, for example, by construction of higher buildings. It will help to preserve nature and landscapes. Denser construction would reduce use of roads and energy. This factor is especially important in the face of threatening climate change.

The 2007 Climate Change Report states that the information obtained from all continents and oceans shows that many natural systems are affected by regional climatic changes, particularly temperature increases (IPCC, 2007). It is believed that nearly all regions of the world will be negatively affected by climate change, and this will trigger problems for most economic sectors. It was important that 119 world leaders attended the UN summit in Copenhagen, the largest gathering of heads of state governments in the history of the UN. The 15th United Nations Climate Change Conference (COP15) took place in Copenhagen in 2009 December 7-18.

The gases causing the greenhouse effect (GHG) are emissions from industry, transportation and agricultural production and they are a major cause of the global warming that is observed currently. In European countries, buildings consume over 40% of the EU's total energy, whereas residential buildings consume about 63% (Balaras et al., 2007). Energy-saving measures significantly reduce energy consumption and thus GHG emissions (Zavadskas et al., 2008b). Recent studies show that there is a great economic potential in the coming decades to reduce GHG emissions globally. The land value tax would contribute to resolving the climate change problem.

A land tax will make it economically expedient to reduce areas of used land, for example, by the construction of higher buildings. It will help to preserve nature and landscapes. Denser construction would reduce the use of roads and energy. This factor is especially important in the face of threatening climatic change.

## 5. NEW MODEL FOR LITHUANIA'S TAXATION SYSTEM ON REAL PROPERTY

The suggested model for a real property tax foresees the replacement of building taxes and the tax on land leases with the land value tax on land sites alone. Regarding the land value tax, it is recommended that:

1. Tax rates should guarantee the same revenues for municipalities as the current real property taxes do. Therefore the tax rate is established as the ratio between revenues from the current real property taxes and land values, as

$$TR = (LTR + LLTR + RPTR) / LV$$

where: *TR* is the tax rate; *LTR* is municipal revenue from the land tax; *LLTR* is municipal revenue from land leases; *RPTR* is municipal revenue from the real property tax and *LV* is the total market value of all taxed land within the municipal territory.

2. Different tax rates need to be applied to avoid a highly increased tax burden on residential land sites and a considerable decreased tax burden on commercial land sites.
3. The tax rate ceiling needs to be determined on a national level, and municipalities need to be authorized to establish tax rates within established limits.
4. An untaxed minimum should be discarded, because it burdens the structure of the taxation system thus making it more expensive; it also negates human equality.

5. Exemptions from the land value tax can be granted to retired (age 65 years and older) and disabled (Categories 1 and 2) landowners but only until such land is bought or inherited.
6. When the tax burden more than doubles due to assessments of the land value tax, the increased tax can be distributed over a period of several (3-5 years) years.
7. Land value maps, i.e., mass assessments, need to be used to base land assessments for taxation purposes, and the multiple criteria assessment method needs to be used to control such assessments.
8. Land should be reassessed annually to avoid huge value increases between assessments and to increase municipal tax revenues by taxing land value increases.

## 6. CONCLUSIONS

The following results should be achieved by introducing the land value tax in Lithuania:

1. Assessment costs will be reduced substantially.
2. Investments for buildings should be stimulated.
3. Land reform will proceed much faster, and land speculation will be reduced.
4. Land would be built-up more densely and rapidly.
5. It would encourage owners either to renovate or to demolish and rebuild shabby and unkempt buildings.
6. There will be greater impartiality in territorial planning.
7. Land would be spared and used more effectively.
8. Increases of roads would slow along with energy consumption. Nature and landscapes would be better preserved.
9. Growth in land prices should decrease.

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## SANTRAUKA

### ŽEMĖS VERTĖS MOKESTIS DARNIOS MIESTŲ PLĖTROS KONTEKSTE IR VERTINIMAS. I DALIS – POLITIKOS ANALIZĖ IR NEKILNOJAMOJO TURTO APMOKESTINIMO KONCEPCINIS MODELIS

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Šiame straipsnyje nagrinėjamos problemos, susijusios su nekilnojamojo turto apmokestinimu. Straipsnis padalintas į dvi logines dalis. Pirmojoje dalyje panagrinėta darnaus vystymosi koncepcija, apžvelgta Lietuvos nekilnojamojo turto mokesčių sistema, ypatingas dėmesys skirtas žemės vertės mokesčio poveikiams. Kaip šios dalies tyrimų apibendrinimas pateikiamas naujas Lietuvos nekilnojamojo turto apmokestinimo modelis, paremtas vien tik žemės vertės mokesčiu.