

FACTORS AFFECTING LAND PRICES IN THE URBAN FRINGE OF THE MEKONG DELTA

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Fast urbanization has made land prices in urban fringes rise incessantly, and therefore, value of such land should be estimated more precisely. In reality, however, land prices set by authorities are usually lower than market prices, which has led to distortions in the realty market. This paper aims at providing practical information and identifying factors that affect the land price in the urban fringe of the Mekong Delta in order to support a better control over the realty market in this region.

Keywords: Land price, realty market, urban fringe, economic growth.

1. Introduction

The fast urbanization in recent years has made the land prices in urban fringes rise incessantly and become a matter of concern to authorities, investors and consumers as well. One of market demand now is a method of estimating exactly real values of suburban land to facilitate operations in the realty market. Statistics show that land prices set by authorities are always lower than the market ones. This failure not only hinders development of the realty market but also produces bad effects on potentials for economic growth. The followings are some of them:

Firstly, lower land prices set by authorities give birth to an unofficial market that operates beyond the state control and regulations, causing distortions of prices and market demand. **Secondly**, the difference in price makes both sellers and buyers confused about real value of

real estates, leading to poor efficiency of the market because the commodity does not produce the best benefit when it is transferred to end users. **Thirdly**, lack of symmetrical and transparent information about real estate prices gives birth to an army of middlepersons who cause more distortions of prices for their profit. Finally, land clearance in housing projects or other public works is usually very slow because of protest by local residents who do not accept small compensations paid by authorities for their land, which leads to increases in expenses and large areas of unproductive land for years.

The realty market in the Mekong Delta faces the same aforementioned problems. This paper aims at providing prices of land in urban fringes and identifying factors that affect the land price in order to help relevant authorities evaluate the land price and control the market more effectively by encouraging positive factors and limiting negative ones. Secondary data from

1,860 households that engaged in trade in land (dwelling, orchard and field land) in urban fringes in the years 2008 – 2010 are used for the research.

2. Theoretical basis and research model

Land is a valuable natural resource whose supply is unchanged although its using purposes may change over time. Fixity of the supply of land implies that the land price is determined mostly by the demand, instead of by both demand and supply forces as found in other commodities. Thus, studies of prices of suburban land tend to focus on the demand for real estate and could be divided into three groups:

The first group, such as Burt (1986), Featherstone & Baker (1987), and Plantinga & Miller (2001), etc., consider income from agricultural production as decisive factor in the price of suburban land; and this variable, among others, is used widely in their researches.

The second group (such as Chicoine, 1981; Benirschka & Binkley, 1994; Cavaihes & Wavresky, 2003; Livanis et al., 2006; etc.) employs the gravity model of trade to demonstrate impacts of non-agricultural factors on urban fringe land, such as location; distances to city center, schools, and trading centers; and utility service supply.

The third group includes researchers employing the hedonic pricing model, such as Shonkwiler & Reynolds (1986); Bastian et al. (2002); and Turner (2005). They focus on effects of non-monetary factors such as environmental quality (especially pollution), landscape, neighbors' friendliness, and security, etc. on urban fringe land prices. Generally, the land price is in direct proportional to quality of these factors because they make residents' life more pleasant.

The paper introduces the following research model based on the above-mentioned arguments and conditions in Vietnam:

$$\begin{aligned} GIADAT = & \beta_0 + \beta_1 THUNHAPDAT + \beta_2 KCTRUNG TAM + \\ & + \beta_3 KCTHUONGMAI + \beta_4 KCTRUONGHOC \\ & + \beta_5 KC DUONGCHINH + \beta_6 MATTIEN \\ & + \beta_7 NGUONDIEN + \beta_8 NGUONNUOC \\ & + \beta_9 ONHIEMNUOC + \beta_{10} ONHIEMKHONGKHI \\ & + \beta_{11} ANNINH + \beta_{12} KYVONGGIA + \\ & + \beta_{13} QUYHOACHTREO + \beta_{14} LOAIDOTHI \end{aligned}$$

In the model, the dependent variable (GIADAT) is the market price of land (VND1,000/m²); and THUNHAPDAT means income (VND1,000/m²/year) from agricultural production (for orchard or rice field land) or non-agricultural activities (for dwelling land). Coefficient β_1 of this variable is expected to have the positive sign because high income increases the land value.

KCTRUNG TAM, KCTHUONGMAI, KCTRUONGHOC, and KC DUONGCHINH are distances (meter) to the nearest city center, trading center (or supermarket, or marketplace), school, and main street respectively. The longer the distance the lower the land price because more cost and time are required when land owners need high-class goods or services (only available in the city center) or to take their children to schools. Great distances from such facilities prevent land owners from making the best use of profitability of land when carrying out non-agricultural activities. Thus, coefficients β_2 , β_3 , β_4 and β_5 are expected to bear negative signs.

MATTIEN is a dummy variable that equals 1 if the plot of land has a frontage of at least 3.5 meters and 0 otherwise. Coefficient β_6 is expected to be positive because the real estate with a frontage is more profitable (through business of leasing).

NGUONDIEN is a dummy variable that equals 1 if supply of electricity is available and 0 otherwise. Similarly, the dummy variable NGUONNUOC is worth 1 if supply of water is available and 0 otherwise. Coefficients β_7 and β_8 are expected to have positive signs because they enhance the living conditions for land owners and increase the land price.

ONHIEMNUOC is 1 if the natural source of water is fresh enough or only slightly polluted, 2 if the source is polluted to a certain extent, 3 if it is seriously polluted and 4 if it is very seriously polluted. Variable ONHIEMKHONGKHI has a value of 1 if the degree of air pollution is low; and it is worth 2, 3 and 4 if the pollution degree is medium, high and very high respectively. Similarly, variable ANNINH reflects degree of security in the neighborhood that varies from 1 (very high), to 2 (high), 3 (low), and 4 (very low). According to the hedonic school, coefficients β_9 , β_{10} and β_{11} are expected to have negative signs because the better the quality of those factors, the higher the land price.

KYVONGGIA is 0 if the seller, or buyer, has no expectation of increased prices, it rises 1 point for every 10% by which the price is expected to increase. If the expectation is high, benefit for land owner is also higher, so is the land price. Thus, coefficient β_{12} of variable KYVONGGIA is expected to have the positive sign.

The land price in urban fringes is greatly affected by “undecided” planning. Under this condition, the land is unproductive and its price is low because no transaction is allowed. To test this effect, the dummy variable QUYHOACHTREO is included in the model. It equals 1 if the plot of land is under “undecided” planning and 0 otherwise. The coefficient β_{13} of this variable is expected to be negative. It is

apparent that β_{13} reflects difference in prices between plots of land under, and free from, “undecided” planning.

Additionally, cities in Vietnam are divided into various grades (special, first, second, or third grades, etc.) according to their infrastructure, population, level of socioeconomic development, importance to surrounding provinces, etc. The higher the grade, the higher the land price in the city fringes. To test this fact, the variable LOAIDOTHI is included in the model. It is 1 if the city is classified as the first grade; 2 if the city is of the second grade, and so on. Thus, coefficient β_{14} of this variable will have a negative sign because of the fact that the lower the grade of the city, the lower the land price.

3. Results

a. Information about the land price in urban fringes of the Mekong Delta:

Table 1 provides some information about the land price in urban fringes of the Mekong Delta based on primary data gathered from randomly selected 1,860 households that have engaged in trade in land, comprising 629 household in Cần Thơ City, 269 in Vĩnh Long City, 228 in Bến Tre City, 221 in Hậu Giang Province (Vị Thanh City and Ngã Bảy Town), 142 in Cà Mau City, 137 in Long Xuyên City (An Giang Province), 129 in Sóc Trăng City and 105 in Rạch Giá City (Kiên Giang Province).

As shown in Table 1, the average price of dwelling land included in the survey (with 1,620 observations) is VND2,067,000/m². Standard deviation of the dwelling land price is pretty large, which implies that the prices vary over plots, locations and districts because the land price in general and the urban fringe land price in particular is affected by various factors (as discussed in the next section). Our survey reveals

that the dwelling land price varies between the peak of VND33 million per square meter in fringes of major cities in the Mekong Delta (where trading center, road networks, and public utility services, etc. are good) and the lowest level of VND100,000/m² for plots that suffer disadvantages in terms of location, environment, security, road network and title deeds.

Regarding the orchard land price, the average level from 472 observations is VND651.000 /m² (Table 1), much lower than the price of dwelling land because turning orchard land into dwelling land costs the land owner a big sum of money as required by law. The price of orchard land may reach a peak of VND7.5 million/m² for plots that could be used for non-agricultural purposes (industrial, tourism, or trading businesses) because of their favorable location, beautiful landscape or large areas.

In the research, OLS method is used for estimating effects of factors in the research model on prices of two types of land, namely dwelling land (1,620 observations) and orchard land (472 ones) (See Table 1)¹. As for rice field land, the small number of observations (125) makes the estimation model statistically insignificant, and therefore its price is not analyzed here. Results presented in Table 2 show that prices of both dwelling and orchard land is affected by non-agricultural factors, price expectation and grade of nearby urban areas.

Specifically, to dwelling land (column 2, Table 2), KCTRUNG TAM has a negative coefficient at the significant level of 5%. This implies that the farther from the city center, the cheaper the plot of land. Similarly, coefficients of KCTHUONG MAI and KCTRUONGHOC variables are also negative at significant levels of

Table 1: Price of land at urban fringes in the Mekong Delta (VND1,000/m²)

Type of land	Medium	Highest	Lowest	Standard deviation	Observation
Dwelling	2,067	33,000	100	2,527	1,620
Orchard	651	7,500	50	833	472
Rice field	262	5,000	30	553	125

Source: Calculations from data surveyed in 2008-2010

Of these types of land, the rice field land is the cheapest (about VND262,000/m²) because income from such rice field is not high, and it requires much time and energy, or large sums of money, to convert it to other purposes, unless it is near to arteries, large residential areas, industrial parks, trading centers, marketplaces, and major administrative offices or in an area where town planning is in place. Our survey reveals that such plots of farmland might be sold at VND5 million per square meter (See Table 1).

b. Factors affecting the urban fringe land price in the Mekong Delta:

10% and 1% respectively. Coefficient of variable KV DUONG CHINH, however, is negative but it is not statistically significant. This implies that this factor has no noticeable effect on the price of

¹ Test results show that independent variables used in the model for estimating factors affecting the price of dwelling land have a VIF of 1.43. This implies that no multicollinearity exists between independent variables. Similarly, VIF of independent variable used in the model for estimating factors affecting the price of orchard land is 1.60. Meanwhile, χ^2 test allows us to reject a hypothesis of differing residual variance at a significant level of 10%.

dwelling land at urban fringes in the Mekong Delta.

Regarding variable MATTIEN, its coefficient β_6 of 615.501 at a significant level of 1% implies that plots of land with a frontage of 3.5 meters or wider will be VND615,501 per square meter dearer than other plots. Both NGUONDIEN and NGUONNUOC have positive coefficients as expected but they are not statistically significant because local residents have alternative sources of electricity and water (electricity from neighboring houses, and water from wells of canals).

Table 2: Estimates of effects on the land price at urban fringes

Dependent variable: GIADAT – market price of land (VND1,000/m²)

Variable	Dwelling land	Orchard land
(1)	(2)	(3)
Constant	4,579.852 (8.389)	1,040.406 (5.061)
TNHAPDATTHOCU	0.002 (0.665)	
TNHAPDATVUON		-0.001 (-0.948)
KCTRUNGTAM	-0.017** (-2.133)	-0.003 (-1.009)
KCTHUONGMAI	-0.090* (-1.650)	-0.019* (-1.805)
KCTRUONGHOC	-0.281*** (-8.494)	-0.011 (-1.214)
KCDUONGCHINH	-0.103 (-1.531)	-0.095*** (-4.384)
MATTIEN	615.501*** (3.863)	162.807*** (2.993)
NGUONDIEN	604.660 (1.276)	-51.912 (-0.304)
NGUONNUOC	36.086 (0.241)	106.299*** (2.898)
ONHIEMNUOC	-197.356** (-2.447)	-3.457 (-0.192)

ONHIEMKHONGKHI	-17.489 (-0.158)	36.445 (1.066)
ANNINH	-462.383*** (-6.250)	-27.679 (-1.193)
KYVONGGIA	49.298*** (2.707)	-5.573 (-0.912)
QUYHOACHTREO	-599.321*** (-3.457)	-100.642** (-2.500)
LOAIDOTHI	-470.781*** (-8.626)	-57.354*** (-2.724)
Observations (N)	1,620	472
R ²	0.340	0.305
Adjusted R ²	0.332	0.275
F test	34.189	6.812
Prob (F-statistic)	0.000	0.000

Source: Calculations from data surveyed in 2008-2010

Note: *, **, and *** represent significant levels of 10%, 5% and 1% respectively

Of variables reflecting pollution, only ONHIEMNUOC has a coefficient that bears the expected sign at the significant level of 5% while the coefficient of ONHIEMKHONGKHI, although negative, is not statistically significant because in fact, air pollution is hard to detect unless it rises to a serious level. Estimates also show that security has a considerable effect on the dwelling land price because the coefficient of ANNINH is negative at the significant level of 1%. This implies that good security makes the price of land higher.

Of three remaining variables on column 2 (KYVONGGIA, QUYHOACHTREO and LOAIDOTHI), their coefficients have expected signs at the significant level of 1%. The most notable is KYVONGGIA. Expectation for a higher price usually comes from information about projects to realize infrastructure works or build trading centers, administrative offices, residential area, industrial parks, and schools, etc. If price expectation is high, potential buyers

may accept higher prices. However, such information, in fact, is only rumor, not official one, disseminated by real estate agents or intermediaries for their profit. Such rumor, unfortunately, is spread quickly, causing many people to engage in the realty market and jack up the land price, which may lead to market collapse. Publicizing widely information about town planning and infrastructure projects is an effective way to make the realty market healthier.

Estimation also affirms that “undecided” planning makes the land price fall (coefficient of QUYHOACHTREO is negative at a significant level of 1%) because land owners cannot use the land in a productive way or sell it at market prices. Finally, LOAIDOTHI coefficient is negative at a significant level of 1%. This reflects the fact that the higher grade for the city makes the land price (both market and official prices) in its fringes rise accordingly.

Regarding the orchard land (column 3, Table 2), coefficients of variables that affect marketing and sales (KCTHUONGMAI, MATTIEN and KCUDUONGCHINH) and crop growing (NGUONNUOC) have expected signs at significant levels of 10% and 1% respectively. Like the dwelling land, the orchard land is also affected by QUYHOACHTREO and LOAIDOTHI because their coefficients are negative at significant levels of 5% and 1% respectively.

4. Conclusion and suggestions

The paper aims to provide information about market prices of three classes of urban fringe land in the Mekong Delta: dwelling land, orchard land and rice field land. The average price is VND2,067,000/m² for dwelling land (1,620 observations), 651,000/m² for orchard land (472 observations) and 262,000/m² for rice field land

(125 observations). Large numbers of observations ensure that such information is practical and useful for authorities, investors, and land users.

The paper also estimates effects of various factors on the land prices at urban fringe in the Mekong Delta, specifically dwelling and orchard land. Our estimates show that the price of dwelling land is affected by non-agricultural factors, such as distances to downtown areas or trading centers, and schools. Particularly, frontage location and security in neighborhood can make the price get higher. These are “real” factors affecting the price. Thus, development of infrastructure, supply of public utility services, and public security can increase the price of urban fringe land.

Estimates also show that bullish expectations make the price rise. As analyzed above, price expectations come from both real and unreal information, which distorts the realty market and allows certain participants in the market to make easy money. To make the market fairer, information, especially the one about town planning, should be transparent and available to ascribe true values to the land.

The paper also demonstrates that the “undecided” planning has a negative effect on the land price in urban fringes. It is worth noting that the “undecided” planning is still widespread in the Mekong Delta, and it should be eliminated as soon as possible.

There are many solutions to this problem. Firstly, the desire among provincial leaders for urbanization at any price without long-term strategies should be restrained. This desire has led to the unfeasible and unscientific planning, and then, “undecided” planning with many unpredictable consequences for socioeconomic development. Information about planning should

be publicized and residents involved should be fully informed of any changes in the planning and provided with opportunities to voice their criticisms. At present, local residents are deprived of these rights, which led to opportunities for corrupted officials to exploit the residents and for real estate companies to earn easy money based on asymmetrical information.

Secondly, measures should be taken to deal with the lack of work ethics and sense of responsibility among planning-related officials. This is the cause of many cases in which local authorities take land away from farmers to grant it to investors while the Land Law only allows such expropriation when the land is used for national defense, public security, public use, national interest and economic development.

Thirdly, a town planning law should be made to clarify rights and duties of authorities of different levels in order to determine who should

accept responsibility for violations of law. Additionally, local authorities should supervise land clearance and payment of compensation by investors in order to prevent investors from forcing residents to sell their land at low prices, which may lead to mass litigation.

Prices of orchard land depend on factors that facilitate transport of farm products to markets. This finding re-affirms the role of infrastructure and other public works needed for business and daily life because practical experience shows that building roads and marketplaces help everybody make money. Finally, the price of orchard land in urban fringes is also affected by “undecided” planning and the grade of city it is adjacent to■

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