

The Effects of the Price Ceiling Regulation on the New Apartment Price on Characteristics of Housing in Korea

Sungjin Yun, and Kabsung Kim

Abstract—Korean Government enact the price ceiling regulation on the new apartment price in order to stabilize housing price and to retribute development gain of construction firm. However, the regulation has been criticized for distorting real estate market as well as worsening corporate earnings. In this context, this study examines the effect of the regulation by analysis of correlation between the regulation and licensing amounts of housing construction. The results from testing hypothesis indicates the regulation reduce housing supply and increase the ratio of larger house. Unlike original policy goal, these results mean the regulation should worsen stability of housing though raising housing price and make housing supply differ from demand downsizing household. Furthermore, to lowering construction cost, the regulation can deteriorate in housing quality and reduce of possibility of innovation such as U-service.

Keywords—Development gain, Price ceiling, Regulation, U-City

I. INTRODUCTION

PRICE ceiling regulation on the new apartment price was enacted to stabilize housing price and to retribute development gain of construction firm. However, legitimacy and efficiency of the regulation remains as a matter to be discussed further.

Several studies in favor of the regulation like [1], [2] point housing supplies cannot be replied to demands, and these structural characteristics of Korean housing market gives an advantage to the suppliers. Thus, in order to stabilize housing market in the consumer side, it is necessary to enact the regulation.

However, according to studies against the regulation such as [3]-[10] asserted the price adjustment which distort housing market functions negatively in the long-term. Enacting the regulation raises market price of housing due to reducing supply and degrade quality of housing owing to reducing construction cost. It means a gap between policy objectives and its effects is present.

In this context, this paper is intended as an empirical analysis

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of the price ceiling regulation on the new apartment price on characteristics of housing.

II. REVIEW OF THE LITERATURE

A. Review of Theoretical Aspect of Price Ceiling Regulations

A price ceiling is a government-imposed price control or limit on how high a price is charged for a product. Governments intend price ceilings to protect consumers from conditions that could make necessary commodities unattainable.

We can understand about situation when enacted the price ceiling regulation in Fig. 1 from [11]. In an unregulated market, equilibrium point is E , and equilibrium price and quantity is p and q . If price ceiling is positioned above the equilibrium position such as p_b , the regulation have no effect on market equilibrium. However, if price ceiling is positioned below the equilibrium position such as p_c , market equilibrium cannot be achieved. Thus, price should be downward to level of price ceiling. Such change of price lead to increasing demands by q_1q_2 and decreasing supply by q_2q . Finally, the price ceiling of p_c should arise excessive demand by q_1q_2 .

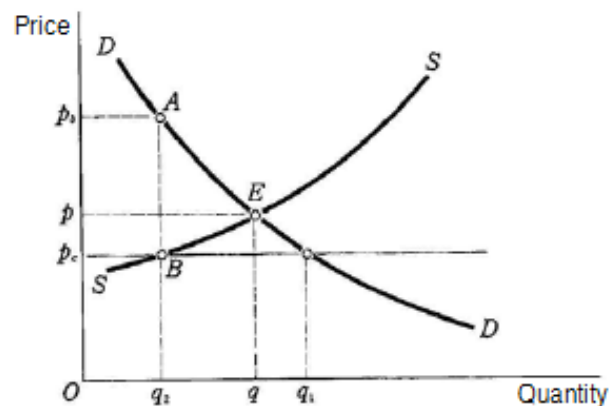


Fig. 1 Economic Effect of Price Ceiling

This graphic explanation indicates price ceiling give the advantage of lower price to a few consumers, and the gap between market price and legal price cause the problem of a double price: black market. Furthermore, imposing price ceiling can produce negative results to policy objection, lowering price, in a long-term view due to decrease supply. It means price ceiling regulation on the new apartment price should lead not to stabilizing housing market for consumer but

to increasing housing price harmful to consumer.

Also, the price ceiling regulation can have effect to price structure. In each stage of Korean procedures of housing supply such as compensation, site development, housing development, actor gain development profit. Site developer make a profits by pay for expropriation of land and construction and by taking risk. Housing developer make a gains composed of risk premium and windfall by purchasing land, constructing apartment and parceling out to consumer. Meanwhile, vendee of apartment who is parceled out at first turn a profit from parcel premium between parcel price and market price by bearing the risk with housing developer under pre-construction sale system.

A considerable number of studies such as [7], [15], [16] have been proposed that the price ceiling regulation on parcel price increases margin of vendee and reduces construction cost as follows: Fig. 2. Reduction of construction cost has effects on characteristics of housing like size composition, and causes deterioration in housing quality and reduction of possibility of innovation such as U-service.

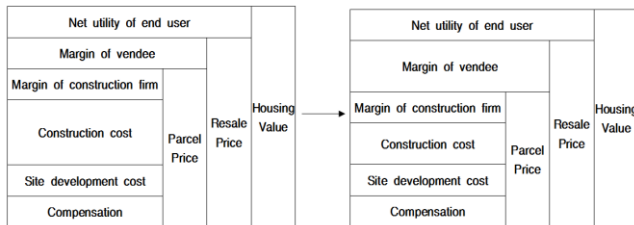


Fig. 2 Effects of the Price Ceiling Regulation on the new apartment price structure

B. Review of the Empirical Evidence of the Impact of Price Ceiling Regulation on the New Apartment Price

In the previous discussion, reviewing the price ceiling regulation on parcel price in theoretical aspects, we can find the regulation can increase housing price by reducing supply and cause deterioration of housing quality by reducing construction cost. Over the past few decades, a considerable number of empirical studies like [3]-[8] have conducted on these subjects.

Several studies such as [3], [10], [11] analysis construction firms will reduce housing supply when parcel price cannot reflect housing development cost due to price ceiling regulation. Otherwise, as examined in several studies like [6]-[8], the firms lower the quality of housing to reduce construction cost.

C. Review of the Discussion about U-City

The compound word “U-City” which is similar to “Smart City” is formed from the words “Ubiquitous” and “City”. “Law of Ubiquitous City” conducted in 2009 in Korea defines U-City as a city what provides U-service anytime and anywhere through U-infrastructure constructed to improve the city competitiveness and quality of life by leveraging technology. In case of housing adapt U-service, improving quality of housing and residential environment was expected. In this context, over the past few decades, a considerable number of studies like [17], [18] have been conducted on U-service. Several studies such as [19] on U-service point that adapting U-service on

housing can increase cost of housing construction, and a few attempts like [13] have been made at financing of U-City.

D. Summary of the Discussion

Although existing researches have been made on how the price ceiling regulation works on housing market according to its principle, there are some limitation as follow.

First, existing research has mainly focused on analysis based on principles of price ceiling, but very few attempts have been studies on real empirical test. This is because the quantitative data wasn’t fully cumulated owing to short period after reenacting the regulation in 2007. But, existing problem of research results what cannot be reflected real world makes difficult to understand how the regulation works in real world in Korea.

Second, in the interpretation of the analysis results, existing researches have limitations. Although studies have dealt with its effects of increasing price by reducing supply and degradation of housing, there are little attention what these results really mean such as effects on future housing market and paradigm of housing development.

Thus, in this studies, I would like to review of theoretical principle and history of price ceiling regulation in Korea, to analyze the effects of the regulation reenacted in 2007 in aspects of housing supply and characteristics, and to deduct implications based on empirical results.

III. HISTORY OF PRICE CEILING REGULATION ON THE NEW APARTMENT PRICE IN KOREA

The Price ceiling regulation on the new apartment price in Korea has several different features according to each period, and we can summarize in Table I. There are four period: the first period of price ceiling regulation(1963~1989), the second period of price ceiling regulation(1989~1995), the period of the deregulation of the price ceiling policy(1995~2007), and the third period of price ceiling regulation(2007~).

In the first period of price ceiling regulation, the regulation introduced to prevent the spread of speculation, to lower the parcel price and to secure easy buying of houseless people. In this period, parcel price was set uniformly regardless of its land price.

Meanwhile, in the second period of price ceiling regulation, parcel price was set by interlocking with production cost such as land price, construction cost, etc. Comparing to uniformly price ceiling regulation, it is relaxation type. The government set the level of each component of production cost: standard building cost, reasonable profit and so on.

However, as these regulation cause side effects, the price ceiling regulation was deregulated gradually. In 1995, deregulation was started in several region where housing market was stable such as Gangwon, Chungbuk, Jeonbuk, Jeju, to large housing over 85m². It enlarge to all region except capital area in 1997. At last, in 1999, the price ceiling regulation on the new apartment price was deregulation entirely.

With a speedy rising of housing price, reintroduction of price

ceiling regulation had discussed. In 2007, the regulation reenacted and last up to this day. This study call this period the third period of price ceiling regulation. In this period, similar to the second period of price ceiling regulation, the parcel price will be set based on production cost which the government set.

TABLE I
HISTORY OF PRICE CEILING REGULATION ON THE NEW APARTMENT PRICE IN KOREA

Period	Years	Contents
The first period of price ceiling regulation (1963~1989)	1963. 11.	Price ceiling regulation was adopted to public housing
	1977. 10.	Price ceiling regulation was adopted to private apartment
	1981. 6.	Deregulation to apartment over 85 m ²
	1981. 8.	Reintroduce in Seoul
	1983. 1.	Reintroduce over whole country
The second period of price ceiling regulation (1989~1995)	1983. 3.	Complement: Introduction of the bond bidding system
	1989. 11.	Introduction of apartment parcel price interlocking system
The period of the Deregulation of the price ceiling policy (1995~2007)	1995. 11.	Deregulation to several region.
	1996. 12.	Deregulation except capital area and metropolis
	1997. 5.	Deregulation except capital area
	1998. 2.	Deregulation to apartment built in private land
	1998. 10.	Deregulation to apartment over 85 m ² built in public land
The third period of price ceiling regulation (2007~)	1999. 1	Deregulation entirely
	2007. 4.	Reintroduction of the price ceiling regulation
	2008. 8.	Acknowledgement of the additional costs in multipurpose building and private land

IV. METHODOLOGY

A. Research Question

This study tries to understand the effects of the Price Ceiling Regulation on the New Apartment Price which was reenacted in 2007 in Korea on Characteristics of Housing by addressing two related questions: (1) Does the regulation reduce quantity of housing?; (2) Does the regulation lead housing size bigger by reducing marginal construction cost?

Two hypothesis will be tested to answer these questions. The hypothesis underlying the first question is that the regulation reduces housing supply. The hypothesis underlying the second question is that the regulation works as a way to reduce the construction cost, and housing characteristics will be changed to reduce construction cost such as bigger size or lower quality.

Measuring the effects of the regulation present considerable challenges to researches. This is because the criteria of true scientific experiments, of random assignment, of control of the experimental stimuli and control on choice of experimental and control groups, can clearly not be met in any such research. Thus, this study uses interrupted time-series design, which is quasi-experimental research designs. According to [14], this

design is often used when periodic measurements of an effect of interest are available. In general, experimenter use a test of statistical significance to assess the likelihood that the results of an experiment could have occurred by chance. This study use independent sample T-test.

To test the hypotheses, licensing amounts data of housing construction from January 2002 to September 2014 were collected. Considering nature of housing goods which takes a long time to supply, licensing amounts data will be the best measuring instruments for the then current supply characteristic of housing.

V. RESULTS

The results of testing first hypothesis shown in Table I. In average, licensing amounts before enacting the regulation are 234,693 households, and the amounts after enacting the regulation are 191,240 households. Consistent with our first hypothesis, the significance test result about the regulation effects indicated a decrease in licensing amounts after enacting the regulation.

TABLE II
EFFECT OF THE PRICE CEILING REGULATION ON QUANTITIES OF LICENSE AMOUNTS

Category	N	Mean	Standard Deviation	t	p-value
No action	63	234,693.0	139,028.8	-1.758*	0.081
Action	90	191,240.5	165,589.1		

Note: *, **, *** are statistically significant at 10%, 5%, 1%, respectively

Also, about second hypothesis, we analyze housing component ratio of size over 135m². In result, the ratio was 7.4% before the regulation, but the ratio have increased up to 10.3% after the regulation. It was found from the significance test result about these difference that the regulation will increase the component ratio of big size housing. Considering change of housing culture to small size due to decreasing household scale with family nuclearization and low birthrate and to increasing single-person household, these results clearly shows that the regulation make housing size bigger contrary to social context,

TABLE III
EFFECT OF THE PRICE CEILING REGULATION ON RATIO OF LARGE HOUSING

Category	N	Mean	Standard Deviation	t	p-value
No action	63	7.4	3.2	-5.707***	0.000
Action	90	10.3	2.7		

Note: *, **, *** are statistically significant at 10%, 5%, 1%, respectively

VI. CONCLUSION

So far, we have seen how the price ceiling regulation on new apartment price affect the characteristics of housing. This study summarizes in theoretical aspects, analyzes the effects based on empirical data, and deducts policy implication.

First, the results indicate the regulation reduce housing supply. Such a reducing of supply makes the housing price

increase, and it means the regulation can worsen stability of housing contrary to original policy goal.

Second, the results show the regulation make housing size bigger. This is because marginal construction cost is smaller in bigger house than smaller house. In other words, in condition of price ceiling, it can be understood the effort to reduce the construction cost. In trend of downsizing household and increasing single-person household, such increasing of large housing supply should cause mass unsold state, and these state can be shown the effect from market distortion of policy failure.

Furthermore, reducing construction cost lead to lowering quality of housing, and it also effect to housing innovation like U-City.

From what has been discussed above, we can conclude that the price ceiling regulation is isolated from its policy goal: resident stability and residential environment improvement. Therefore, the regulation should be discussed again and solve these issues.

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