

# RESIDENTIAL DEVELOPMENT ACTIVITY IN THE POLISH LEGAL SETTING

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## Abstract

Residential development in Poland has gone through many changes over the last few decades. In the 1990s, housing cooperatives played a major role among investors in the residential market, whereas developers were only taking their first steps. Today the situation has reversed. In addition to private persons building homes for their own use, developers contribute the most to the supply of new housing. There are many factors that have led to this situation. It is noteworthy that many laws governing the real estate market, the construction market, the development of entrepreneurship, etc. have been either enacted or frequently amended over the last two decades, which may have significantly affected developers' activities.

The article is an attempt to answer the question about whether and, if so, how strongly changes in the legal setting have influenced residential development activity in Poland.

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**Key words:** *development activity, legal setting, quantitative analysis, housing construction.*

**JEL Classification:** K110, C32, L74, R31.

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## 1. Introduction

Development activity is a time-consuming, capital intensive and very complex type of business activity (see: KUCHARSKA - STASIAK 2006, pp. 229 - 239). It is, therefore, influenced by many factors affecting the real estate market, entrepreneurship in the given area, as well as the construction industry, the finance sector, etc. A relatively sustainable growth of development activity in the Polish residential market has been observed over the past two decades. There have, however, been numerous phenomena that disrupted this activity, causing a rapid increase or decline in the supply of developer-built residential dwelling units. The said phenomena have often been of an economic nature. One cannot downplay, however, the role of other factors, such as changes in the legal setting since the housing policy, implemented, among others, by means of law, plays an important role in shaping housing supply in a particular area.

The aim of the article is, therefore, to assess the impact of changes in the legal setting on development activity in the Polish residential market. On the basis of qualitative analysis of selected legal regulations, an attempt was also made to use econometric methods to capture the quantitative impact of changes in the law on the supply of developer-built residential dwellings in the years 1993-2013. For the purpose of the article, developer-built dwellings are dwelling units that, according to the methodology of the Central Statistical Office of Poland, are designated for sale or rent. This category includes dwellings built by development companies and other for-profit entities (*www.stat.gov.pl*, access: 5.02.2014). Since 2000, single-family housing for sale or rent has been separate by law from private housing (see KURLEJ, NOCKO 2011). However, due to the difficulties in the accurate estimation of its number prior to this date, such housing was not included in the further part of the study.

## 2. Determinants influencing the growth of development activity

Foreign literature defines development activity in many ways:

- 1) (*land development*) as a process in which work performed leads to changes in land use or intensification in the use of the existing land or building (BALCHIN et al. 1995, p. 126);
- 2) (*property development*) as a process that involves changing or intensifying land use to construct buildings, or as a complex activity involving the use of scarce land resources (CADMAN, TOPPING 1995, p. 1);
- 3) (*property development*) as an "activity which changes the state of land" (MILLINGTON 2000, p. 1).

A.F. Millington adds that real estate properties are constantly developed/converted in order to satisfy the needs of the society, and developers respond to this demand by creating supply in the real estate market (MILLINGTON 2000, p. 1).

Development activity in national literature is considered to be "a creative activity that involves taking up initiatives regarding spatial development" (ŚMIETANA, ZAGÓRSKA 2009, p. 150).

Activity understood in such a way has a close relationship with the real estate market. This means that its development will be affected by the determinants that influence the growth of this market, both from the demand and supply side. These factors have been repeatedly discussed in literature (compare: KUCHARSKA – STASIAK, Sopiński, Wiśniewska et al. 2000; BRYX 2006; CYRAN 2006; CHYCAK, JARMOŁAJEW 2007; GOSTKOWSKA – DRZEWICKA 2010; GRAZIOSI 2007; CHATURVEDI 2008; BOIRON, BOIRON 2008; WASSENBERG 2013).

It should be noted, however, that a developer is primarily an entrepreneur, as defined in the Civil Code (see: Civil Code 1964). Thus, the growth of development companies will also be determined by the development of entrepreneurship in a particular area. Determinants of this type have also been discussed in literature, both domestic and foreign (compare: KOŹMIŃSKI 2004; GROSZKOWSKI 2013; MAŁDRA 2013; PANTULU 1989; SHARMA 2007; BARON, SHANE 2008).

The analysis of literature on factors affecting the real estate market and entrepreneurship leads to the conclusion that development activity is influenced by three basic groups of factors:

- 1) macro factors (system-wide factors – uniform for the whole country or another system),
- 2) meso factors (local factors arising from the functioning of a business in a given area),
- 3) micro factors (resulting from the specific features of development companies).

The present article contains only an analysis of one of the macro factors, i.e. the legal setting. The above-cited literature quite often emphasizes the role of economic factors, which include, in particular, the economic situation, the inflow of foreign investments, inflation and interest rates, as well as GDP. Issues associated with the legal setting are overlooked in many classifications and analyses. Perhaps in the international context this factor is not so important, as the real estate markets, including development activities, have operated there for decades and their legal foundations are already well regulated. In Poland, which has recently undergone a political transformation, this market has operated for a relatively short period of time and, therefore, many issues still need to be further refined. Thus, new laws are introduced every year, while others undergo changes, affecting development activity to varying degrees.

## 3. The legal setting of development activity in Poland – delimitation of the research field

The development process, denoting a sequence of actions which result in the transformation of a property in order to increase its value (LIPIŃSKI 2000), is a very complex process and requires the cooperation of entities specializing in various fields. This complexity makes the scope of the regulations affecting this activity equally extensive.

Development activity carried out in the years 1993 – 2013 was affected by dozens of legal acts and secondary legislation. Due to their large number, 12 acts, which may have played an important role in the dynamics of development activity in the Polish residential market, were selected based on a preliminary analysis of their content. They have been listed and characterized in Table 1. The scope of content of these laws is also extensive. The author has, therefore, selected those normative solutions that, in her opinion, may have directly or indirectly affected the number of developer-built dwellings.

The choice of the above-mentioned laws is justified as developers would not be able to perform their activities if not for rules governing the category of property, ensuring clarity of property rights and property uses. Development activity is mainly characterized by various types of construction works. Building objects and installations must first be designed and then constructed and supervised

by competent bodies. The proper selection of the contractor and a good construction contract determine the efficiency and reliability of the works. Provisions regarding the process of obtaining building permits, and later a permit for use, also play an important role. However, before proceeding to prepare project documentation, the developer should be familiar with the applicable local plans regarding the possibility of building a particular property. In their absence, the rules are set individually for the potential investor in the form of a decision on land development conditions. In recent years, a growing role has been attached to the protection of the environment. Thus, the implementation of the given project is sometimes subject to the evaluation of its impact on the environment. In addition, the information prospectus must indicate any investment within the radius of 1 km which could have an impact on its attractiveness, taking into account environmental decisions.

Table 1

Summary of selected acts which may have affected residential development activity

No.	Legal act	Act code	Normative solutions covered by the study	
			Content scope	Legal basis
1	<i>Ustawa z dnia 23 kwietnia 1964 roku Kodeks Cywilny, Dz. U. 1964 nr 16 poz. 93., z późn. zm. (Act of April 23, 1964 Civil Code, Journal of Laws 1964 No. 16 item 93, as amended)</i>	KC	Provisions relating to property, ownership and other property rights, conclusion of the contract, land servitude and utility easement, construction contracts, sales, warranty and guarantee	Art. 44-55 <sup>2</sup> , 66-72, 140-154, 155-159, 232-243, 244-251, 285-295, 305, 535-581, 647-658,
2	<i>Ustawa z dnia 16 września 2011 roku o ochronie praw nabywcy lokalu mieszkalnego lub domu jednorodzinnego, Dz.U. 2011 nr 232 poz. 1377 (Act of September 16, 2011 on the Protection of the Rights of the Purchaser of a Dwelling or Single-family Home, Journal of Laws, 2011, No. 232 item 1377)</i>	ON	All the solutions covered by the Act	Art. 1, 3 – 6, 8-34
3	<i>Ustawa z dnia 21 sierpnia 1997 r. o gospodarce nieruchomościami, Dz.U. 1997 nr 115 poz. 741, z późn. zm. (Act of 21 August, 1997 on Real Estate Management, Journal of Laws, 1997, No. 115 item 741, as amended)</i>	GN	General provisions, divisions, consolidations and divisions, sales and perpetual usufruct, tender for the sale of real estate, establishment of methods and a time frame for land development, prices, property fees and payments, share in the costs of technical infrastructure facilities construction	Art. 4 – 5, 13, 15, 27 – 34, 37- 41, 62 – 73, 76-83, 92 – 99, 101-108, 143-148,
4	<i>Ustawa z dnia 24 czerwca 1994 roku o własności lokali, Dz.U. 1994 nr 85 poz. 388, z późn. zm. (Act of June 24, 1994 on Ownership of Premises, Journal of Laws, 1994, No. 85 item 388, as amended)</i>	WL	General provisions, establishment of a separate ownership of premises, joint-ownership property management	Art. 2-9, 11, 18-20, 29-30, 32a,
5	<i>Ustawa z dnia 15 grudnia 2000 o spółdzielniach mieszkaniowych, Dz.U. 2001 nr 4 poz. 27, z późn. zm (Act of December 15, 2000 on Housing Cooperatives,</i>	SM	General provisions, cooperative right to residential premises, separate ownership of premises	Art. 1, 17 <sup>1</sup> -27 <sup>1</sup>

	<b>Journal of Laws, 2001, No. 4 item 27, as amended)</b>			
6	<i>Ustawa z dnia 26 października 1995 r. o niektórych formach popierania budownictwa mieszkaniowego</i> , Dz.U. 1995 nr 133 poz. 654, z późn. zm. ( <i>Act of October 26, 1995 on Certain Forms of Supporting Residential Construction</i> , <b>Journal of Laws, 1995, No. 133 item 654</b> , as amended)	NFPB	All the solutions covered by the Act	Art. 2-7, 8 - 14, 15a, 15e, 16-20, 23-24, 27-28, 29a-32, 33e-33k, 42
7	<i>Ustawa z dnia 7 lipca 1994 r. - Prawo budowlane</i> , Dz.U. 1994 nr 89 poz. 414 z późn. zm. ( <i>Act of July 7, 1994 Building Law</i> , <b>Journal of Laws, 1994, No. 89 item 414</b> as amended)	PB	General provisions, rights and obligations of participants in the construction process, pre-commencement procedures, construction of and consigning building objects for use	Art. 3-5 <sup>1</sup> , 6-7, 9-10, 17-37, 39-55, 56-60, 90, 92-93, 103-105
8	<i>Ustawa z dnia 27 marca 2003 roku o planowaniu i zagospodarowaniu przestrzennym</i> , Dz.U. 2003 nr 80 poz. 717 z późn. zm. ( <i>Act of March 27, 2003 on Spatial Planning and Land Development</i> , <b>Journal of Laws, 2003, No. 80 item 717</b> as amended)	PZP	General provisions, spatial planning at the municipality and voivodeship level, location of public purpose investments and establishing land development conditions for other types of investments	Art. 2, 4, 6, 9-10, 14-15, 18, 30, 34-39, 50, 52- 67, 85-87
9	<i>Ustawa z 6 lipca 1982 r. o księgach wieczystych i hipotece</i> , Dz.U. 1982 nr 19 poz. 147 z późn. zm. ( <i>Act of July 6, 1982 on the Land and Mortgage Registers and Mortgage</i> , <b>Journal of Laws, 1982, No. 19 item 147</b> as amended)	KW	All the solutions covered by the Act	Art. 1-3, 16, 19, 21-22, 24-24 <sup>1</sup> , 25 <sup>1</sup> , 35, 36 <sup>3</sup> -36 <sup>5</sup> , 65, 67-69, 72-78, 84-87, 89-90, 94-95, 98-108-111
10	<i>Ustawa z dnia 8 września 2006 roku o finansowym wsparciu rodzin w nabywaniu własnego mieszkania</i> , Dz.U. 2006 nr 183 poz. 1354 z późn. zm. ( <i>Act of September 8, 2006 on the Financial Support of Families in the Acquisition of Their Own Home</i> , <b>Journal of Laws, 2006, No. 183 item 1354</b> as amended)	WR	All the solutions covered by the Act	Art. 1-12a
11	<i>Ustawa z dnia 24 marca 1920 r. o nabywaniu nieruchomości przez cudzoziemców</i> , Dz.U. 1920 nr 31 poz. 178 1990.11.20 z późn. zm. ( <i>Act of March 24, 1920 on the Acquisition of Immovable Properties by Foreign Persons</i> , <b>Journal of Laws, 1920, No. 31 item 178 1990.11.20</b> as amended)	NNC	All the solutions covered by the Act	Art. 1, 3a -3e, 5-8

12	<i>Ustawa z dnia 3 października 2008 r. o udostępnianiu informacji o środowisku i jego ochronie, udziale społeczeństwa w ochronie środowiska oraz o ocenach oddziaływania na środowisko, Dz.U. 2008 nr 199 poz. 1227 z późn. zm. (Act of October 3, 2008 on Providing Information on the Environment and its Protection, Public Participation in Environment Protection and Environmental Impact Assessment, <b>Journal of Laws, 2008, No. 199 item 1227</b> as amended)</i>	UIS	Definitions and general principles, access to information, publicly accessible lists, reports on the environmental impact, undertakings requiring assessment, decisions on environmental conditions	Art. 3-4, 8, 13, 21-28, 59 - 103,
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Source: Author's own compilation.

Information plays an important role in development activity. Information concerning the legal status of the property is contained in land and mortgage registers, which are now maintained in electronic format. However, the efficiency of their operations leaves much to be desired. The Act on Land and Mortgage Registers and Mortgage also regulates issues related to mortgage, which plays a major role in the context of highly capital-intensive investments made by developers.

Many developers buy farmland for investment purposes. Therefore, changing the status of farmland (from agricultural to residential) is necessary, as well as regulating its legal status, carrying out land divisions and connecting it to municipal utilities. In addition, a developer can acquire rights to real estate property owned by the State Treasury and local government units. These can be in the form of ownership as well as the right of perpetual usufruct. Such issues are regulated by the Act on Real Estate Management.

It is worth noting that real estate in Poland may also be purchased by foreigners, which provides the possibility of carrying out development activity by foreign entities. The Act on the Acquisition of Immovable Properties by Foreign Persons specifies the conditions for their acquisition. These conditions have changed over the recent decades, e.g.: by introducing the instrument of "promissory agreement" (the possibility of obtaining a written promise of being granted a permit) and in subsequent years by allowing long-term European Community residents to purchase real estate, which may have contributed to the growth in the demand for residential properties, as well as to an increase in the number of foreign developers.

The introduction of the Developers Act changed the relationship between the developer and the client significantly. The solutions adopted for the contract, information prospectuses or fiduciary accounts should protect consumers from unfair practices, however, they are difficult to implement for some developers. Since the agreement requires the developer to construct the premises, establish separate ownership of the premises and transfer the property rights onto the buyer, the provisions of the Act on the Ownership of Premises apply here as well.

The ability to carry out development projects is largely dependent on demand. Demand, in turn, is conditioned by financial possibilities. Therefore, state support is important in the housing market, where basic needs of the population are met. Such an auxiliary function was fulfilled, among others, by the "Family on its Own" (Rodzina na Swoim) Program, which increased demand for housing, both in the secondary residential real estate market, as well as the primary one. The program functioned until 31 December 2012. Its conclusion led to a reduction in demand. The successful growth of development activity also depends indirectly on the development of other competing forms of construction, i.e. cooperative and social housing associations. As a result, the provisions of the Act on Housing Cooperatives and certain forms of supporting residential construction may have had a significant impact.

Due to the lack of reliable data on the number of developers in different years, legislation affecting the functioning of developers as entrepreneurs was not taken into account for further analysis.



Considerations are, therefore, focused only on regulations that affect the production volume of developer-built dwellings.

Moreover, the study omitted the rulings of the Constitutional Tribunal, bearing in mind, however, that the revoking of a specific provision by the ruling of the Tribunal may have resulted in changes in the number of developer-built dwellings.

The summary of legislation in Table 1 contains laws currently in force. However, some of the acts were replaced by other laws over the analyzed period. The Act of 7 July 1994 on Spatial Development, (Journal of Laws, 1994, No. 89 item 415), along with significant amendments, was included in the study. The Act on Providing Information on the Environment and its Protection, Public Participation in Environment Protection and Environmental Impact Assessment was preceded by two other acts: the Act of 9 November 2000 on Access to Information on the Environment and Its Protection and on the Assessment of Environmental Impact (Journal of Laws, 2000, No. 109, item 1157) and then the Act of 27 April 2001 – Environment Protection Law (Journal of Laws, 2001, No. 62, item 627, as amended). The latter, however, leads to conflict situations. It is difficult to take into account the legislative changes made to it in this respect as articles regarding the assessment of environmental impact and environmental decisions have been repealed, but the amendments that revoked them remain in force in their entirety. Therefore, it was decided not to include amendments to this act in the further part of the study. The acts preceding the relevant legislation, if they entered into force before 1993, as well as regulations that came into effect in the period after October 2013, were also not considered. Thus, the Act of 27 September 2013 on State Aid in the Purchase of a First Home for Young People (Journal of Laws, 2013, item 1304) was not taken into consideration, despite being important to development activity.

It should be noted that, due to the limited content scope of the study, the large number of legislative changes in the acts of law in question resulted in the need for their reduction. As a result, legislative changes concerning the following issues were not taken into account:

- 1) land where developers do not build residential real estate, e.g.: closed areas, extermination memorial sites, sea areas, communal allotment gardens, mining areas, economic zones, etc.
- 2) non-residential properties,
- 3) property rights not applicable in development projects under implementation, i.e. cooperative right to residential premises, property use, security,
- 4) changes regarding the reformulation of an existing provision without actually creating a new regulation.

In addition, provisions governing administrative procedures, names, as well as the rights and obligations of entities responsible for the creation of secondary legislation, were not taken into consideration. The number of legislative changes taken into account in the further part of the study can be seen in Table 2.

**Table 2**

Inventory of legislative changes in the studied legislation in the years 1993 –2013 (excl. CT rulings)

Number of the Act acc. to Table 1	Number of amendments in the laws in force		Total number of legislative changes included in the study (incl. the relevant acts and the acts no longer in force along with their amendments)
	Total number of acts amending the analyzed legislation in the years 1993- 2013	Number of amending acts included in the study	
1	51	5	5
2	0	0	1
3	60	9	10
4	6	2	3
5	12	4	5
6	27	7	8
7	55	11	12
8	25	3	8
9	20	5	5
10	4	3	4
11	15	4	4

12	25	1	4
Total			69

Source: The author's own compilation based on Online Legal Database.

It should be noted that if one of the acts introduced significant legislative changes in other acts, it was accounted for only once.

#### 4. Specification and estimation of the model

The article analyzes the legal setting that may have potentially affected development activity in the Polish residential market in qualitative terms (the analysis and selection of changes in the law deemed relevant by the author). An attempt was also made at a quantitative analysis of the impact of the key legislative changes in the legal setting concerning this activity with the use of an econometric model.

The number of residential dwelling units consigned for use in housing construction designated for sale or rent in the period from January 1993 to October 2013 was selected as the explained (dependent) variable in the model. The explanatory variables encode the periods when the selected legislative changes were/are in effect from their entry into force. Acts replaced by new legislation or the introduction of a new law were treated as other legislative changes. In the case of changes involving many articles, if only a part was altered, they are treated in the further part of the study as legally binding. The explanatory variables were identified by codes (compare: Table 1) and numbers. The codes refer to a particular act; the numbers represent an additional designation of the moment when the given legislative change was introduced. These variables include the values of zero and one: 0 denotes the period in which the legislative change is not in effect, whereas 1 denotes the period when the legislative change is in effect from the moment it entered into force. In periods when the given acts were repealed in their entirety, the variable values return to 0. In total, the model assumed 69 explanatory variables. The study also took into account monthly seasonal variables.

Our model is linear:

$$y_i = a_0 + a_1x_{1i} + a_2x_{2i} + \dots + a_kx_{ki} + \varepsilon_i \quad (i = 1, 2, \dots, n) \quad (1)$$

where:

- $Y$  – dependent variable,
- $x_1, x_2, \dots, x_k$  – explanatory variables,
- $a$  – model parameters,
- $\varepsilon$  – random component,
- $k$  – number of explanatory variables (KUFEL 2011, p. 56).

The correlation analysis indicated the existence of a significant relationship between multiple variables. This was due, among others, to the fact that some of the legislative changes introduced came into force at a similar time. It was, therefore, decided to reject some of them so as to eliminate both collinearity and correlation of 0.98 (convergence of dates for the entry into force of up to 3 months). There is no doubt that this fact must be taken into account when interpreting the results of the estimated model.

Since the development process is time-consuming, it was necessary to introduce lags of explanatory variables into the study. According to CSO data, in the I-II quarter of 2013, the average realization period of the developers' investments was 25.7 months (*Budownictwo mieszkaniowe..., September 2013 (Housing Construction - I - II Quarter 2013)*), and in the I-III quarter of 2013, only 25 months (*Budownictwo mieszkaniowe..., December 2013 (Housing Construction - I - III Quarter 2013)*). Nowadays, however, developers have more advanced technologies at their disposal along with more experience which, combined, enable them to carry out development projects faster than a dozen years ago; hence this period was intuitively extended to 30 months in the further part of the study. It should be noted, however, that some legal acts have a relatively long period of *vacatio legis*. This allows developers to prepare in advance for the legislative changes; therefore the effects of their introduction may be visible earlier than the period of 25 - 30 months from the date of their entry into force. After the analysis of the periods of *vacatio legis* of all the studied legal acts, they were divided into 3 groups: those with a short period (up to 3 months), medium-period (up to 12 months) and long period (more than 12 months). Lags of 25 - 30 months, 15 - 25 months, and 10 - 20 months were studied in the first, second and third groups, respectively. Out of principle, the current period was not included in the study, assuming that, due to the time-consuming investment and construction process, it would be

difficult to capture the immediate statistical correlation between the introduction of the legislative changes and the number of dwellings consigned for use.

After the sequential elimination of insignificant variables with a two-tailed critical region,  $\alpha = 0.05$ , the estimated lag model showed a high degree of fit - nearly 90. Unfortunately, it was also characterized by a lack of normal distribution of residuals and the phenomenon of collinearity between some of the explanatory variables.

**Table 3**

The results of the model estimated with the use of OSL, observations used 1995:07-2013:10 ( $N = 220$ ), dependent variable: residential dwelling units

	<i>Coefficient</i>	<i>Standard error</i>	<i>t-Student</i>	<i>p - value</i>	
<b>const</b>	-127.471	168.095	-0.7583	0.44912	
<b>PB96_30*</b>	545.763	269.986	2.0214	0.04452	**
<b>PB05_22</b>	2021.6	229.25	8.8183	<0.00001	***
<b>GN98_23</b>	917.526	243.118	3.7740	0.00021	***
<b>WL95_25</b>	426.931	220.059	1.9401	0.05373	*
<b>NFPB09_25</b>	1843.87	382.987	4.8144	<0.00001	***
<b>PZP03_25</b>	994.906	172.796	5.7577	<0.00001	***
<b>WR06_26</b>	1494.55	278.019	5.3757	<0.00001	***
<b>WR09_10</b>	-2183.94	285.454	-7.6508	<0.00001	***
<b>WR09_25</b>	-1269.87	404.894	-3.1363	0.00196	***
<b>dm10</b>	967.946	173.98	5.5635	<0.00001	***
<b>dm11</b>	632.821	178.913	3.5370	0.00050	***
<b>dm12</b>	1966.21	178.728	11.0011	<0.00001	***
Arithmetic mean of dependent variable	2817.377		Standard deviation of dependent variable	2040.266	
Sum of squared residuals	1.06e+08		Residual standard error	716.2126	
Coefficient of determination R-squared	0.883524		<b>Adjusted R-squared</b>	<b>0.876772</b>	
F(12, 207)	130.8491		P-value for F-test	1.40e-89	
Log-likelihood	-1751.741		Akaike information criterion	3529.483	
Schwarz-Bayesian information criterion	3573.600		Hannan-Quinn information criterion	3547.299	
Residual autocorrelation - rho1	0.019853		<b>Durbin-Watson statistic</b>	<b>1.945597</b>	

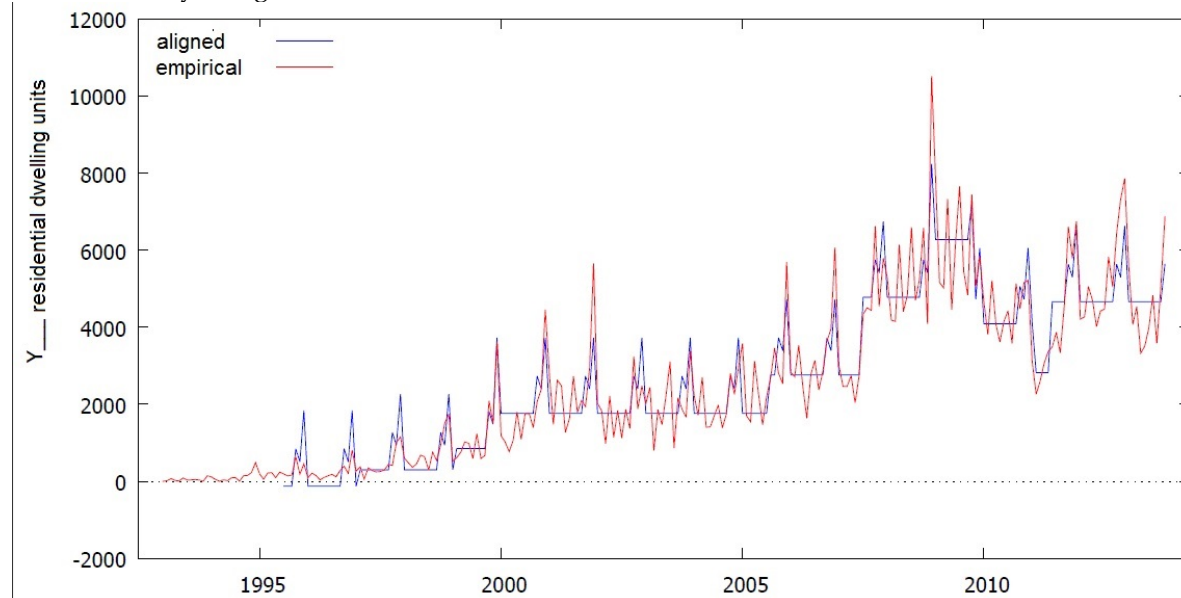
\* \_30 denotes a lag of 30 periods

Source: The author's compilation with the use of GRETL software.

After removing several variables, including PZP07\_25, SM12, and subsequently also dm5, the final model was obtained (Table 3). The VIF(j) collinearity assessment carried out indicates a lack of variance inflation (values < 10). The value of the Durbin - Watson statistic also points to the lack of autocorrelation of residues. The critical values for this test at  $\alpha = 0.05$ ,  $n = 220$  and  $k = 12$  equal:  $d_L = 1.66552$ ,  $d_U = 1.89502$  (<http://www.kufel.torun.pl/dw.xls>). Since  $d$  is less than 2, it must be concluded that because  $d$  ( $1.945597$ ) >  $d_U$  ( $1.89502$ ), there is no basis for rejecting  $H_0$  of the irrelevance of a positive autocorrelation. This means that forecast errors regarding the actual value of the "residential dwelling unit" variable are randomly distributed. A P-value of more than 0.05 in the Doornik - Hansen test: (1994) - transformed skewness and kurtosis: Chi-square(2) = 5.799 at p-value of 0.05505 points to a lack of basis for rejecting  $H_0$  of normally distributed residuals. The adjusted  $R^2$ , indicating the degree of fit of the model functions to the empirical data, still seems to be surprisingly high: approx. 0.877. This is confirmed by Figure 1, presenting the fit of the empirical data to the actual data (KUFEL 2011, pp. 53 - 119; SOBCZYK 2013, pp. 62 - 70). It should be concluded that the variables that ultimately remained as significant explain the growth of residential development activity, measured as the number of residential dwelling units completed, in almost 88%. One may wonder whether this is a coincidence or



whether the impact of the housing policy on the level of development activity in the residential market is really so significant.



**Figure 1.** Empirical data and time-aligned data. *Source:* Author's compilation using GRETl software.

## 5. Interpretation of results

Due to the high level of fit of the model, an attempt was made at interpreting the estimated parameters. As a result, it can be said that the model captures the following relationships between the explained variable and the explanatory variables:

$$\begin{aligned} \hat{Y} = & -127.47 + 545.76\text{PB96\_30} + 2021.6\text{PB05\_22} + 917.53\text{GN98\_23} + 426.93\text{WL95\_25} \\ & + 1843.87\text{NFPB09\_25} + 994.91\text{PZP03\_25} + 1494.55\text{WR06\_26} - 2183.94\text{WR09\_10} - 1269.87\text{WR09\_25} + \\ & 967.95\text{dm10} + 632.82\text{dm11} + 1966.21\text{dm12} \end{aligned}$$

(t)\* (-0.7583) (2.0214) (8.8183) (3.7740) (1.9401)  
(4.8144) (5.7577) (5.3757) (-7.6508) (-3.1363)  
(5.5635) (3.5370) (11.0011)

\* the corresponding values of the t-statistic have been indicated in brackets

- 1) **PB96\_30** – the amendment to the Building Law of 1996, denoted by this variable, was to facilitate the investment and construction process. Originally, if the construction had been started or completed without a building permit, the competent authority had the right to order the demolition of the object. The amendment introduced a clause that the article would not be applied if the construction works had been completed before the Act entered into force or if the administrative procedure (to obtain a building permit) had been initiated before that date. Therefore, a positive sign of the parameter at this variable was assumed. The estimated model indicates that in 2.5 years after the entry of the amendment into force, an average monthly increase in the number of developer-built dwellings of approx. 550 units was to be expected.
- 2) **PB05\_22** – in this case, the combined impact of three amendments from 2005 should be considered, i.e. to the Building Law, the Act on Housing Cooperatives and the Act on the Acquisition of Immovable Properties by Foreign Persons. It was assumed that the changes introduced by the first two acts would decrease the number of developer-built dwellings in subsequent periods since the legislation introduced certain restrictions to the construction process and liberalized regulations concerning housing cooperatives. At the same time, the NNC05 variable suggested a possible increase in demand for housing as long-term EC residents were allowed to purchase real estate. The results of the study indicate that the average monthly effect of these laws entering into force should have amounted to more than 2,000 dwellings nearly 2 years later.
- 3) **GN98\_23** – the variable denotes the entry into force of the Act on Real Estate Management, which was important from the point of view of developers as it regulated the issues related to the possibility of selling the property from the resources of the State Treasury or local

government units. This legislative change should be considered along with the amendment to the Building Law that came into effect in December 1997. It introduced certain restrictions associated with deviations from the construction project and a clause according to which if a warrant for the demolition of the object had been issued, a building permit should not be issued. The results of the estimated model, however, indicate that the entry into force of the Act on Real Estate Management may have had a greater impact, resulting in a positive sign of the parameter. Thus, *the average monthly effect of these legislative changes should have been slightly more than 900 developer-built dwellings almost 2 years later.*

- 4) **WL95\_25** – should be considered along with the PB95 and PZP95 variables that are associated with the dates these acts entered into force. They regulated the most important issues related to development activity: the investment and construction process (works that do not require permits but notification of competent bodies), the possibility of dividing the property into premises constituting a separate property, as well as issues associated with spatial planning and land development. Without a doubt, a positive impact of these legislative changes was assumed, which was also reflected in the model parameters. The estimated model indicates that *2 years after these acts entered into force, an average monthly increase in the number of developer-built dwellings of almost 430 units was to be expected.*
- 5) **NFPB09\_25** – this variable was also statistically significant in the context of the legislative changes included in the study. It refers to a change introduced by the amendment to the Act on Guarantees and Sureties Granted by the State Treasury and by Certain Legal Persons, the Law on the National Economic Bank and certain other laws from 2009. The change applies to loans granted by the National Economic Bank under government programs supporting housing construction, which means that it supports TBSs (SHSs - social housing systems), housing cooperatives and municipalities. Increased support for these entities on the part of the state may have also affected the level of development activity. Regression analysis, however, indicated an inverse relationship – *an average monthly increase in the number of developer-built dwellings of more than 1,800 units 25 months after the laws came into effect.* It is therefore likely that another factor had an impact on development activity during this period of time and contributed, to a large extent, to changes in the supply of housing.
- 6) **PZP03\_25** – this legislative change denotes the entry into force of the Act on Spatial Planning and Land Development in 2003. This change may have had a significant impact on development activity. Until July 2003, each investment which necessitated a building permit also required a planning approval, regardless of whether the given area had a local zoning plan in force or not. The new Act separated these two documents, stating that if a local zoning plan existed, its provisions were binding for investors; otherwise a planning approval was necessary. This legal change was aimed at facilitating the investment and construction process. At the same time, an amendment to the Building Law came into effect, clarifying many issues. The estimated parameter for this variable therefore suggests that *25 months after the introduction of these legislative changes, an average monthly increase in the number of developer-built dwellings of approx. 1,000 units was to be expected.*
- 7) **WR06\_26** – is the legislative change reflecting the entry into force of the Act on the Financial Support of Families in the Acquisition of Their Own Home. The "Family on Its Own" program intended for potential buyers on both the primary and the secondary market may have caused an increase in demand, which encouraged developers to pursue new ventures. The conducted study also captured this relationship. According to the estimated model, *the expected average monthly effect of the entry into force of this Act was approx. 1,500 more residential units consigned for use by developers 2 years later.*
- 8) **WR09\_10 and 25** – this variable was seen as statistically significant twice – with a 10 and 25 month lag. It refers to a legislative change that should be considered along with the amendments to the Building Law, the Act on Real Estate Management and the entry into force of the Act on Providing Information on the Environment and Its Protection, Public Participation in Environment Protection and Environmental Impact Assessment. An amendment to the Act on the Financial Support of Families in the Acquisition of Their Own Home (period of *vacatio legis*: 0.5 month) had a positive impact on demand, as it liberalized the requirements of the "Family on Its Own" Program. For example, it allowed a bank loan to be taken by third parties related to the potential borrower, if that person was not creditworthy. Therefore, a positive sign

at the estimated parameter was expected. A similar result was anticipated after the amendment to the Act on Real Estate Management, which was caused by the entry into force of the Act on Public-Private Partnerships (period of *vacatio legis* – 0.5 month). At the same time, however, an amendment to the Building Law came into effect, introducing the need to draw up energy performance certificates for all buildings consigned for use. This may have been an impediment for developers. The period of *vacatio legis* – 13 months – indicates the proper use of the variable of 10<sup>th</sup> lag order. Also, the entry into force of the Act on Providing Information on the Environment and its Protection, Public Participation in Environment Protection and Environmental Impact Assessment, may have had a negative impact on development activity. It primarily, and very thoroughly, regulated issues related to the necessity of preparing environmental impact reports before obtaining an environmental decision and indicated ventures requiring such environmental assessment (the period of *vacatio legis* – 1 week). Thus, both lags seem to be justified. The variables do not negatively affect the assessment of collinearity VIF(j), thus it can be said that less than a year after the entry into force of these legislative changes, a decline in the average monthly number of developer-built dwellings of more than 2,180 units, and 2 years later a decrease of approx. 1,270 units, was to be expected.

Residential construction is characterized by seasonality. Most construction works start in spring and summer, while most developer-built residential dwelling units are consigned for use in late autumn or winter. The above-presented analysis, including periodic variables, confirms this phenomenon. The estimated model indicates that, compared to the average number of housing completions in the first three quarters of the year, developers consigned more dwellings for use in late autumn (October, November and December).

## 6. Conclusions

The study makes it possible to draw three general and three specific conclusions.

Firstly, the level of fit of the model reflected in the adjusted coefficient  $R^2$  is surprisingly high, bearing in mind that the study took into account only 0-1 variables denoting the legislative changes. The reasons for this state of affairs should be considered. Does the housing policy, implemented, among others, by means of legislation, play such a significant role in shaping the supply of developer-built dwellings? It seems it is no coincidence that an econometric tool has helped to capture such a major impact of changes in the law on the volume of developer-built residential dwelling units.

Secondly, it should be noted that many legislative changes come into effect at the same time. Therefore, their combined effect on development activity often needs to be considered.

Thirdly, there are certain changes that can be interpreted individually, such as the PB96\_30 variable, which was so significant that the econometric tool captured the individual statistical relationship with the explained variable.

As far as the specific conclusions are concerned, it is worth noting that among the studied laws and their amendments, the following acts had the greatest impact on development activity: the Building Law, the Act on Real Estate Management, the Act on the Financial Support of Families in the Acquisition of Their Own Home, the Act on Spatial Planning and Land Development, the Act on Providing Information on the Environment and Its Protection, Public Participation In Environment Protection and Environmental Impact Assessment, the Act on Certain Forms of Supporting Residential Construction, and the Acts on the Ownership of Premises and on Housing Cooperatives. The study, however, has failed to capture the relationship between the number of developer-built dwellings consigned for use and the legislative changes related to the Act on the Land and Mortgage Registers and Mortgage, the Civil Code, as well as, more importantly, the Act on the Protection of the Rights of the Purchaser of a Dwelling or Single-Family Home. It is likely that the period during which the Act was still in effect proved too short to capture its impact on development activity. Therefore, it seems necessary to conduct similar studies in the future. This is justified, in particular, by extensive literature indicating the potential effects of the entry into force of the Developers Act on developers. J. Szreder, for instance, mentions an increase in the cost of new investments, as well as decreased competition, and thereby, also an increase in the prices of new dwellings (SZREDER 2012, pp. 273-282). Thus, following the current period of an oversupply of housing caused by the completion of new dwellings whose construction started before the Act came into effect, a decline in supply may occur.

Among the variables, however, the WR09\_10 variable, which denoted the change concerning the necessity for energy performance certificates, showed the greatest statistical impact, while the

WL95\_25 variable, denoting the entry into force of the three acts, had the slightest impact. It should be noted, however, that they came into effect in early 1990s, that is in the period when development activity was just beginning to expand, hence the low value of the parameter.

One should also bear in mind that the study analyzed only certain laws and their selected amendments. The adoption of other explanatory variables, including legislative changes in tax law, as well as economic variables, e.g.: interest rates, GPD or disposable income of households, would have probably altered the results of the estimation. Therefore, there are still many issues associated with this subject matter that require further investigation.

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