Article Title Page

Impact of socioeconomic condition and market characteristics on the location choice of real estate developers in Brazil: the case of Recife City.

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Structured Abstract:
The changes that South America economies has experienced, especially from the 1990s, inserted some countries in the global economic context and increased growth in that countries. Closer relations among the government and market agents marked it, mainly in the real estate market reality. This paper discuss the impact of socioeconomic variables in the location choice of real estate developers in the territory of Recife city, Brazil. It proposed a statistical model using the socioeconomic characteristics of the 94 districts of the city, based on the database of Census of the IBGE (Brazilian Institute of Geography and Statistics, 2000 and 2010). In spite of the different methodology techniques used in other papers, this work concludes that the socioeconomic condition (economic status of neighborhood, or population externalities), are fundamental to understand the segmentation of City´s territory. The occupation determines increasingly segmented areas for poor people that lives in the suburbs, while the best living spaces stays with the rich part of population. This case presents the occupation process most common in the Brazilian's cities, mainly in the major urban agglomerations.

Keywords:
Real estate market, Brazilian real estate, housing market, Brazilian housing market, urban real estate market, location choices agents.

Article Classification:

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Running Heads:

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1 Introduction

The Closer relations among the state and market agents marked the changes that the South America economies has experienced, especially from the 1990s, with the global economic opening and growth of some countries.

In the case of real estate development in emerging countries, with strong statist traditions, such as Brazil, this process led to a series of conflicts among the public government and real estate agents.

Until the 1980s, the Brazilian state tended to remain present in the country's economic outputs, intending to compensate the incapability of an unstructured economic and political system in the context of the global economic recession. However, these years of low growth taxes and high inflation have prompted the state to bankruptcy. The situation led to the downfall of the 1984 military government. Also creates an environment favorable to the subsequent opening of country economic system, especially since 1991, during the political opening process.

The State, mainly in the military government, usually subsidized the Brazilian's housing market, where housing policy has used to control social disturbs. Thereby, it difficulties the development of a strong real estate private sector.

Thus, the development of a private and stronger real estate market only initiated at the economic 1991´s liberalization. Notwithstanding, the legal and financial instruments to a real estate private performance was imposed during the military regime. The instruments of bank financing for the construction and the institutionalization of the condominium type of financing. In this type, the developer finance sales directly to consumers or the own consumers finance the construction by a special type of contract. Thereby, there´s no instruments to possibility a good performance of the real estate private market.

The last three presidents determinates a growth of a new middle-income consumer's class and this was the start point to the consolidation of a private real estate market in Brazil. The growth was more important in the northeast region of country. The poorer country´s region that changes considerably the population income, increasing the buy capability and incrementing the real estate market.

The Brazilian northeast region passed from a very poor economic condition to a better condition, and this situation attracted many new entrepreneurs to play in this region. One of the more important cities of the regions is Recife. The city metropolitan area has more than three million people, 55 percent of them living in very poor condition. Recife is the more important city of metropolitan area and received the major part of the real estate investments.

The High and Medium income families represent most of the private housing market consumers. In Brazil, the low-income consumers, tends to use a self-building (substandard habitations) in illegal areas, or uses the government habitation programs. Thus, the housing market plays a key role in the occupation of the city. These processes have resulted in a transference of poor communities to outlying areas and the construction of real estate projects for middle and upper classes.

This phenomenon led the city of Recife to present an urban structure with two few areas where there are large concentration of housing for middle and upper class, presenting modern construction standards and good urban infrastructure. An inconspicuous area of housing market, but with good infrastructure and a large area with poor infrastructure used by low-income population.

Thus, understand how the housing market moves on the city can assist policy makers in order to constitute forms to equalize the city occupation process. Attract the housing market for other more peripheral city areas, minimizes problems like urban violence, traffic congestion, sanitation, storm water runoff, and others.

This paper aims to study the impact of socioeconomic conditions and market characteristics on the location choices of housing market developers in the city of Recife, Brazil.

2 Methodology

To achieve this goal, we propose a statistical modeling using the socioeconomic characteristics of the 94 districts of the city, based on the database of Census of the IBGE (Brazilian Institute of Geography and Statistics, 2000 and 2010). This database contains informations about all these neighborhoods in middle values.

The database records were associated with the registers of ITBI (Tax on transfer of housing property), that had housing market information, like price of habitation, construction year, apartment area, and neighborhood and building type.

3 Modeling the Factor Analyze (FA) to use the Neighborhood Externalities (H1)

Before to get the final factor analyze model, all the indicators of externaties of neighborhoods available in data banks were tested.

Subsequently, analyzed the correlation matrix and the KMO[4]tests and Barlett[5] test were realized. These tests indicates the degree of explication of the data from the factors and determinate the viability in use this procedure (CORRAR, PAULO e DIAS FILHO 2007).

Initially, the data did not provide good results, so, based in the levels of correlation and in the values of communalities, decided to take off the following variables from the model:

- ‘Access to sanitary facility;
- ‘number of restrooms,;
- ‘perceptual of peoplewho live in subnormal agglomerate’,
- ‘distance to “marco zero” - binary;
- ‘quantity of people per house;
- ‘quantity os particular permanent residencies’
- ‘medium-age of residential stocks’.

Without these variables, the factorial reduction model presented levels more significant of explication of indicators. The first Table (Table 1) shows the measures of central tendency, medial and standard deviation, until arriving at the final model.

The correlation matrix analysis, as shows at the Table 2, consider the correlation existent among many indicators used in the model. The ideal is when there not be any value under 0,40 for the coefficient.

In the below part of Table 2, the levels of significance were presented. In an confidence interval of 95% (ninety five per cent), the values should be less than 0,05. The variable that present magnitude values less than this, or significance values bigger than 0,05 must be taken from the analysis model.

The Table 2, above, shows that there is a significant quantity of correlations that are above 0,40 and also shows that only some relations between variables, few cases do not present levels of statistical significance desirable (sig.<0,05). Even thought, it is necessary observing the others aspects of factorial analysis, like the test KMO and the test of globosity of Barlett (CORRAR, PAULO e DIAS FILHO 2007). The KMO indicates if the factorial analysis is appropriate for analyses the indicators.

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[4] Kaiser-Meyer-Olkin coefficient indicates the explain grade of data factors encountered (CORRAR, PAULO e DIAS FILHO 2007).

[5] Sphericity test indicates whether there is a sufficient connection between the indicators for performing Factor Analysis.

Table 1: Central tendency measures.

	Mean	Std. Deviation	Analysis N
Demographic density	10910,82	6867,25	83
Average Years of formal study	8,32	2,84	83
Percent of people in poor social interest areas	,50	,38	83
Sanity access	1,47	,64	83
Average building stocks age	21,17	11,24	83
Family chief´s income	1076,10	1080,33	83

The Autor.

Table 2: Correlation matrix.

		Demographic density	Average Years of formal study	Percent people of poor social interest areas	Sanity access	Average building stocks age	Family chief income
Correlation	Demographic density	1,000	-,269	,467	-,288	,270	-,287
	Average Years of formal study	-,269	1,000	-,805	,952	-,193	,915
	Percent people of poor social interest areas	,467	-,805	1,000	-,746	,251	-,694
	Sanity access	-,288	,952	-,746	1,000	-,263	,978
	Average building stocks age	,270	-,193	,251	-,263	1,000	-,243
	Family chief´s income	-,287	,915	-,694	,978	-,243	1,000
Sig. (1-tailed)	Demographic density		,007	,000	,004	,007	,004
	Average Years of formal study	,007		,000	,000	,040	,000
	Percent people of poor social interest areas	,000	,000		,000	,011	,000
	Sanity access	,004	,000	,000		,008	,000
	Average building stocks age	,007	,040	,011	,008		,013
	Family chief´s income	,004	,000	,000	,000	,013	

a Determinant = ,001

The author.

The KMO presented value 0,741 (see Table 3), that represents moderate level of explicative capacity. Like Fávero (2006) evaluated by the following way:

- 1 a 0,9 – Very Good,
- 0,9 a 0,8 – Good,
- 0,8 a 0,7 – Medium;

- 0,7 a 0,6 – Reasonable;
- 0,5 a 0,6 – Bad;
- < 0,5 – UnaccepTable.

Corrar, Paulo and Dias Filho (2007) consider that when the values are above 0,50 the model already can be accepted, depending to the others analysis.
Notwithstanding, the FA model can be used. About the Barlett's test, it presented values with accepTable magnitude and significance less than 0,05. So, we consider that the indicators have enough correlations to generate the factorial model (see Table 3).

Table 3 : KMO e Bartlett's tests.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,743
Bartlett's Test of Sphericity	Approx. Chi-Square	566,580
	DF	15
	Sig.	,000

Fonte: theAutor.

Once that the tests presented good results we could start to analyze the correlation anti-image matrix (below part of the Table 2). This matrix reveals, in the mainly diagonal, the degree of correlation between each indicator and the factor to what it allows. According to Corrar, Paulo and Dias Filho (2007), the ideal is that the values of the correlations are bigger than 0,50. In this case, it happened, and this possibilities the model application. According to Corrar, Paulo and Dias Filho (2007), they indicate the indicators power of explication, considering all the factors generated by de model, together.
Most of the values, should be above to 0,7 or, at least, next to this value. The Table 4 shows that the communality level detected in the entire indicator´s model overcome the desirable value. Thus, there are evidences that the model will be usable in this case study. In other words, since each of the factors will substituted by the factors generated.
The anti-image matrix shows how much each indicator explains the generated factors. As higher the correlation values are (below part of schedule 18), higher is the explanation power of the factors. Rather, the scores must be above 0,7 or next that. After analyzing the anti-image matrix and the communalities matrix, that variables with values under 0,5 were eliminated. In spite of the communalities, the variables which presented values under 0,60 were eliminated. Finally, the model appear according to the Table 5.

Table 4: Anti-image matrix.

		Demographic density	Number of years of study	Percent of population in social interest areas	Average Number of bathrooms	Average age of housing stocks	Family chief´s income
Anti-image Covariance	Demographic density	,701	-,039	-,191	-,005	-,113	,021
	Average Years of formal study	-,039	,064	,062	-,022	-,056	,008
	Percent people of poor social interest areas	-,191	,062	,263	,004	-,046	-,018

	Sanity access	-,005	-,022	,004	,022	,032	-,025
	Average building stocks age	-,113	-,056	-,046	,032	,832	-,021
	Family chief´s income	,021	,008	-,018	-,025	-,021	,039
Anti-image Correlation	Demographic density	,661(a)	-,185	-,444	-,039	-,149	,125
	Average Years of formal study	-,185	,782(a)	,483	-,588	-,242	,151
	Percent people of poor social interest areas	-,444	,483	,806(a)	,048	-,099	-,177
	Sanity access	-,039	-,588	,048	,693(a)	,234	-,856
	Average building stocks age	-,149	-,242	-,099	,234	,657(a)	-,114
	Family chief´s income	,125	,151	-,177	-,856	-,114	,748(a)

a Measures of Sampling Adequacy(MSA)

The author.

The FA model generated two factors and they explained the variance of the original data more than 81% (81,118%). Thus, the factors represents accordingly the six indicators used in the factorial analysis model.
From now on, it is possible identify what the indicators that are in the composition of the two factors generated in the FA model. One of the factorial analyze results generates a value matrix, that attributes factorial specific weight to each indicator factors generated. The respective factorial scores observed in the Table 7, in a way that the indicators that present more weight in one of the factors, must be aggregate to it. For example, if an indicator represents more weight inside the factor 1.

Table 5 : Factor Communality Matrix.

	Initial	Extraction
Demographic density	1,000	,636
Average Years of formal study	1,000	,960
Percent people of poor social interest areas	1,000	,758
Sanity access	1,000	,962
Average building stocks age	1,000	,631
Family chief´s income	1,000	,921

Extraction Method: Principal Component Analysis.
Fonte: O Autor.

Table 6: Explained variance**.**

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,807	63,453	63,453	3,807	63,453	63,453	3,465	57,756	57,756
2	1,060	17,665	81,118	1,060	17,665	81,118	1,402	23,362	81,118
3	,756	12,597	93,715						
4	,304	5,067	98,782						
5	,059	,980	99,762						
6	,014	,238	100,000						

Extraction Method: Principal Component Analysis.

The author.

Sometimes the differences between the indicator values for the two factors are not so clear, it is common when we use of the rotation of the factors (in this case it was not necessary to rotation the data matrix). The rotation, as express Yount (2006), does not alter the model, only organizes and better differentiate indicators of each factor. The details in yellow in the Table 7 shows the indicators of factor 1, and in green are the indicators of Factor 2.

The Variable Components of the Factors are:

- **Factor 1 (detail in yellow)**: ‘years of study; ‘population in areas of social interest’; ‘quantity of restrooms; ‘average income of the housefathers’.
- **Factor 2 (detailin green)**: ‘demographic density; ‘age of stocks’.

Table 7: Components factor matrix..

	Component	
	1	2
Demographic density		,648
Average Years of formal study	,950	
Percent people of poor social interest areas	-,869	
Sanity access	,961	
Average building stocks age		,708
Family chief´s income	,938	

Extraction Method: Principal Component Analysis.

a 2 components extracted.

Fonte: O Autor.

Table 8: Neighborhood externalities factors.

Factor 1: Populacional externalities	**Factor 2:** Demographic externalities

• **'years of study;** • **population in poor areas of social interest;** • **Sanity conditions;** • **Families Average income.**	• Demographic density; • Age of housing stocks.

Fonte: theAutor.

Once carried out the statistical procedure, it is necessary to verify whether the factors has consistency with the observed reality. Otherwise, we did another statistical procedure. In this case, the two factors were consistent in spite of the theoretical constructs.
It is observed that the Factor 1 brings more variables related to the population characteristics, thus, will be called "Externalities Stocks". The Factor 2 gathers variables related to the housing market conditions in the neighborhood, as well as the conditions of its stocks real estate. Demographic Externalities named this factor.
Corrar, Paulo and Dias Filho (2007) (2007, p. 95) stressed, "the option 'scores', in the SPSS, allows the researcher hail factor scores for each record in such a way as to be analyzed through other techniques". This option also allows the demonstration of the matrix of coefficients of the scores. Finally we multiplied the matrix values by original values, so creating the factors scores.
Conversely, the data related to the scores of the two factors were saved in characteristics of neighborhoods database (Data of IBGE Census and the Register of ITBI), to be used in the regression model. This is the main objective of this article.

3 Preparation of the Multiple Regression model

The Table 9 presents the central tendency measures results for the variables used in the regression model.

Table 9: Mean and standard deviation of the variables of the regression.

	Mean	Std. Deviation	N
Quantity of Buildings per year and area	53,3920	86,09901	82
Externality demographic	-,0390803	,96300342	82
Externality stock	,0122081	1,00042278	82
Index of the Consumer Preference	,009588	,0300844	82
Value of the ground	1724,0266	1253,51474	82

The author.

The objective of the regression was to establish how the neighborhood externalities determines the preferences of consumers and producers. We previously defined the variables. Some districts had many buildings in a given period and few in the other, or even none. The Jaqueira neighborhood, in particular has a little territorial extension, had smaller quantities of ventures when compared to other neighborhoods, such as the "Várzea" (when, in fact, it is known that the importance of the district of Jaqueira for the real estate market formal middle and upper classes and much more significant than the of the Várzea neighborhood). Thus, as the objective was not an analysis of a historical character, it decided to calculate the square meters annual average built in relation to the area of the district. In this way, we can compare the districts with small territorial extension, in a standardized way, with those of larger extension.

In consequence, we present the following model:

- **Dependent Variable**
  - Quantity of buildings per year and area of the neighborhoods;
- **Independent Variable**:
  - **Neighborhoods Externalities**:
    - Factors of Externalities Stocks
    - Factors of Externalities Demographic;
  - **Average price of square meter;**
  - **Preference consumer index (PCI).**

The introduction of other two market variables objectives to comprehend the impact of the neighborhoods' externalities in the level of estate activity, contrasting with the others. The variables 'square meter price' and 'consumer preference index' completed the model analysis. The first step to the creation of multiple regression is identifying the variables correlation level.

This procedure is automatic in SPSS Software (stepwise method). By this model, the software add each variable and analyze the explained variance. The independent variable more correlated with the dependent are inserted. If not, we exclude it. Corrar, Paulo e Dias Filho (2007), says about the *stepwise* method*:*

> The most common method of sequential search and possibilities to examination the additional contribution of each variable does not depend to the model, because each variable is considered in the inclusion before the development of the equation. (CORRAR, PAULO e DIAS FILHO 2007, 159).

The Table 10 shows that, almost all the correlations are important and having medium or high magnitudes (Sig.<0,05). When this happens, there is a strong possibility to get a good regression model.

Table10: Regression model correlation matrix.

		Housing develop activity	Demographic externalities	Population Externalities	Consumer preference index	Square meter price
Pearson Correlation	Number of buildings per year and area	1,000	-,038	,752	,597	,477
	Demographic externalities	-,038	1,000	,023	-,027	-,347
	Population externalities	,752	,023	1,000	,432	,552
	Consumer preferences index	,597	-,027	,432	1,000	,337
	Square meter price	,477	-,347	,552	,337	1,000
Sig. (1-tailed)	Number of buildings per year and area	.	,368	,000	,000	,000
	Demographic externalities	,368	.	,418	,404	,001
	Population externalities	,000	,418	.	,000	,000
	Consumer preferences index	,000	,404	,000	.	,001
	Square meter price	,000	,001	,000	,001	.
N	Number of buildings per year and area	82	82	82	82	82
	Demographic externalities	82	82	82	82	82
	Population externalities	82	82	82	82	82
	Consumer preferences index	82	82	82	82	82
	Square meter price	82	82	82	82	82

The author.

In Table 11, two variable can be seen, resultant from statistic procedure that will compose the model of multiple regression.

Table 11: included and excluded variables.

Model	Variables Entered	Variables Removed	Method
1	Population externalities	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).
2	Consumer Preferences Index	.	Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a Dependent Variable: Housing develop activity.

The author.

The Table 12 presents values of F coefficient. The F coefficient shows how much we should trust that the R^2 coefficient is valid (determination coefficient). As much bigger is the value of F, as we can refuse the possibility that R^2 is the same of 0 (zero). We observed too the significance values (also called *p values*). If Sig. > 0, that means to say that there is a big possibility of the value of R^2 being 0 and the possibility of it being used in a wrong way to inferences statistics.

Table 12: summary model.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,752(a)	,565	,560	57,12477	,565	104,006	1	80	,000	
2	,810(b)	,657	,648	51,09607	,091	20,992	1	79	,000	1,627

a Predictors: (Constant), population externalities.
b Predictors: (Constant), population externalities, consumer preferences index.
c Dependent Variable: Housing develop activity.

The author.

The Coefficient of Regression (R) presented a high value (R=0,810) in the model with two variables. It is seen that the R adjusted (0,684) also presented high value, indicating the explanation capacity of independent variables (population externalities) and that they explain 64,8% of the dependent variable (Housing develop activity).

As observed in the Table 13, the data do not present colinearity problems, that way, we could leave to analyze the variance and, after, making the regression's equation.

In the Table 14, it is verified the ANOVA. It presents consistent values of F (F=75,494; significant coefficient lower than 0.05). Thus, there is no problem of covariance between the variables, what allows the realization of linear multiple regression.

Table 13: colinearity diagnosis.

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Externalidadepopulacional	Índice de Preferência do

						Consumidor
1	1	1,012	1,000	,49	,49	
	2	,988	1,012	,51	,51	
2	1	1,521	1,000	,11	,17	,24
	2	,988	1,241	,59	,29	,00
	3	,490	1,761	,31	,54	,76

a Dependent Variable: population externalities.

Table 14: ANOVA results.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	339397,114	1	339397,114	104,006	,000(a)
	Residual	261059,120	80	3263,239		
	Total	600456,234	81			
2	Regression	394202,349	2	197101,175	75,494	,000(b)
	Residual	206253,885	79	2610,809		
	Total	600456,234	81			

a Predictors: (Constant), population externalities
b Predictors: (Constant), population externalities , consumer preferences index
c Dependent Variable: population externalities

The author.

Finally, the Table 15 presents the regression model coefficient (β). The coefficient shows the impact of each independent variables in the dependent variable. How the objective of the work is not to guess the future behavior of the dependent variable, but only to identify the variable that present most influence in the explanation of dependent variable, we used it.

Table 15: correlation constant and coefficients.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	52,602	6,309		8,338	,000	40,047	65,157		
	Population externalities	64,704	6,345	,752	10,198	,000	52,078	77,330	1,000	1,000
2	(Constant)	43,562	5,978		7,287	,000	31,663	55,461		
	Population externalities	52,243	6,293	,607	8,302	,000	39,717	64,769	,813	1,230
	Índice de Preferência do Consumidor (**IPC**)	958,786	209,266	,335	4,582	,000	542,253	1375,319	,813	1,230

a Dependent Variable: Housing develop activity.

The author.

The regression equation is in the following way:

Housing develop activity = 0,607 .Population externalities + 0,335 . IPC

The equation of regression allows inferring about the degree of influence of 'populational externalities' in the preference of localization of producers and consumers of real estate market, showed in the 'housing develop activity' in Recife´s neighborhoods.

We observed that the market neighborhood attractiveness depends strongly on the socio-economic characteristics of neighbors and the neighborhood sanity characteristics.
These results confirm the discussion realized by Abramo (2001 e 2007) and Rosenthal (2008) and the articles written by Smolka (1987 e 1992), where the neighborhood characteristics are determinant elements to the residential choice by the families and the developers. In other words, before choosing a determinate place in the city, the consumer establishes your preferences to some places in a way to approximate to your socioeconomic condition in comparison with the others. These socioeconomics characteristics include the income pattern of people that lives in the area.

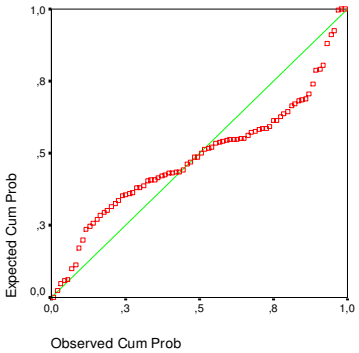
Table 16: colinearity diagnosis.

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Population externalities	Consumer preference index
1	1	1,012	1,000	,49	,49	
	2	,988	1,012	,51	,51	
2	1	1,521	1,000	,11	,17	,24
	2	,988	1,241	,59	,29	,00
	3	,490	1,761	,31	,54	,76

a Dependent Variable: Housing develop activity.
The author.

Table 16 shows the residues normality graph of the regression, one of the fundamental assumptions of this statistical procedure. This way, it perceives that the residues present a normal distribution, and, therefore, we can use the procedure their results are valid. In the same way, the figure 1 represents the disposal of waste in relation to the regression line, with the setting up of a visual comparison of the values predicted by the regression equation and the real values of the database.
It observes that the residues have a homogeneous behavior in relation to the regression line, not presenting outlier significant on the distribution of waste. This is more an important indication of the 'population externalities" are fundamental to the investment decision of families, and the promoters also prefers to follow the conventions, acting to diminish the market risk perception.
In relation to demographic externalities, the model didn´t present significant values. This seems to indicate that the consumers and producers worry more about the standard population neighborhood. In case of consumers, the population neighborhood is important, because they will have to live with their neighborhoods for a long time. These questions seems to be more important than the demographic conditions (demographic density and age of housing stocks).

Figure 1: residual graphic plot.



In summary, the results indicates that the real estate activity searches areas where the neighborhood externalities are positive. The neighborhood externalities are determinant to the choice process by developers

and families. The housing locations in Recife follows the population condition in order to approximate these characteristics with yours.

4 Conclusions

In fact, the neighborhood externalities represented a significant aspect to the location choice by the real estate agents in the city of Recife. Join with the Consumer Preference index (IPC), explain until 68,4% the variance of dependent variable.

The results are consistent with the works of other Brazilian authors, like Fávero (2006), Abramo (2007), Aguirre e Macedo (1996), Smolka (1989 e 1992), Gonzalez (2007). In addition to other seminal works developed by American authors like Rosenthal (2008), Brueckner & Helsley (2011), Ozo (1986), and others.

In in spite of different methodology techniques, this work concludes that the socioeconomic condition (economic status of neighborhood, or population externalities), are fundamentals to understand the segmentation of Recife´s territory, determining increasingly separating areas for poor people, that is most living in the suburbs and the most interesting living areas is occupied by rich part of population.

The chances occurred during the last years constituted a new paradigm in the Recife city living. This change process introduce a new urban cycle in the city, that attracts the rich families to some areas, while induce the poor to get out of these areas. The price changes tends to induce the poor people to sell these houses and search new areas in the suburbs. It is transforming and homogenising the neighbourhoods by the income conditions criteria.

Using the DiMaggio and Powell (1991) institutional approach, we can explain this process of expulsion not as a normative or coercive action, but like a mimetic process. I.e., the poorest inhabitants of a city see the prices up as an opportunity to gain from selling the property and moving to a cheaper area, more compatible with its social conditions. Moreover, the arrival of new families with better income, education, hygiene, etc., begins to change the current convention in town, leading to a dissociation process between the reality of the place and the externalities existing neighbourhood.

The low level of neighborhood socioeconomic characteristics determines one great level of depreciation in the housing prices. Therefore, the process or urban sprawl in the city follows a center-peripheral logic, from the two urban centralities identified.

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