PROCESS MODEL FOR UNDERSTANDING STAKEHOLDERS EXPECTATIONS IN NEW PROJECTS DEVELOPMENT

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ABSTRACT

There is a fundamental change in the making and delivering of successful new construction projects: the focus shifts towards value adding for projects based on a better understanding of stakeholders expectations. The process of modelling this new paradigm in construction will put "the creation of value in the eyes of the client", central in the development of new projects. This paper describes a model that is designed to help stakeholders to achieve their expectations regarding urban and housing projects. The process of integrating different sub-models (costs and qualities) is examined and includes quality evaluations based on people's preferences and willingness to pay.

The model is developed through a methodological pluralism, identifying people-oriented variables. The different parts of the model are described, besides data requirements for each part. The development of the model was based on a case study carried out on the city of Guayaquil-Ecuador. Information obtained from a field work research was used for testing of the model. The study examines implications and limitations of the use of the model for inclusion of stakeholders. The paper concludes with findings regarding the identification of most preferred attributes by housing users and the use of alternatives methods to incorporated additional value to the projects, translated in more appealing profits for developers and the provision of better and affordable houses for the users.

Keywords: urban process model, stakeholders, value, profitability, affordability

1. INTRODUCTION

The shift to the new paradigm in construction towards value adding for projects will lead to the central question of how to incorporate this value into projects. This question evokes an 'ongoing circle which starts and ends on the knowledge of every aspect for value creation' (Oostra 2008). This paper argues that a starting point for incorporating value into new projects is a better understanding of stakeholders expectations. Thus is necessary first to identified stakeholders and then to understand their different and frequently opposite objectives in a project. The aim of the study is to develop a simulation tool that could help different stakeholders to achieve their expectations incorporating additional value translated in more appealing profits for developers and the provision of better and affordable houses for users. The model is based on a case study of a developing country, in the city of Guayaquil-Ecuador. Data obtained from a field work over people's preferences and willingness to pay is incorporated in the model. The approach of this study goes beyond the traditional view in this specific context of considering housing users as clients but as project stakeholders, whose opinion is essential for making a successful project and obtaining the benefits expected by developers and planners.

The process of elaborating a simulation tool in order to incorporate additional value to urban housing projects by understanding stakeholders expectations is one of the main purposes of this research. This process will place the creation of value in the eyes of the client. Clients demand for better quality housing in this specific context of

a developing country has not been previously effectively translated into simulations models. This is partially due to the fact that the process of translating subjective data into objective terms in a simulation model is not just a straightforward procedure. (Fellows and M.Liu 2000; Gregorio and Cronemyr 2008).

Stakeholders have different and sometimes conflictive expectations in a project. Balancing the different interests, visions, and objectives is the key for delivering more successful urban housing projects (Curtice 2006). This study tries to deal with those expectations by grouping stakeholders into two main groups. On one side are the housing users and on the other side land developers. Between these two main groups other groups of stakeholders could act and change roles and expectations, as: local or central government, building contractors, land owners, educational institutions, social organizations. The simulation tool described in this paper is not an especially sophisticated model, but could be used for reviewing options and tradeoffs for the different involved stakeholders. Thus, one of the objectives of this paper is not just the creation of a new better model, but a logical analysis of the concepts that have been used in the process of model development that could lead us in the future to more sophisticated and integrated models.

2. CASE STUDY ANALYSIS

2.1 Stakeholders identification in the local housing context

Central Government: The Government establishes the housing policy, as part of its development policies and is responsible of the financial (giving a housing bonus) and legal frame to develop housing for low income people. The Government determines also the *standards for construction materials and housing techniques for social housing programs.*

Local Government: The Local Government is in charge of the administration, planning, regulation and creation of laws and procedures for the city of Guayaquil and the canton. The local Government determines also the *design standards for new urban housing developments* in the city, including for social housing projects.

Besides Central and Local government other stakeholders are: International agencies; Second level finance entities; Private sector; Community and end housing users; Materials providers; Chambers of construction and industry.

2.2 Brief description of stakeholders participation

Ecuador, as other Latin American countries, has difficulties to organized the urban growth of the housing sector caused by the migratory flow field-city and the natural growth of the population (Barros 2004). The deficit of housing in Ecuador in 2002 was estimated in about 1.200.000 dwellings by INEC (National Institute of Statistics and Census 2001), of which 60% was qualitative and 40% quantitative. Actually, Ecuador's Housing policy has been oriented towards facilitating access to housing units for low income families that do not own a house, or whose housing units lacks basic provisions. Within such housing policy, the state abandoned its traditional role of promoter, builder and financial agent to assume the role of the facilitator of tasks to be fulfilled by the private sector. The main strategy of that policy was the creation of a direct subsidy system, similar as other countries of the region. It was created a Housing Incentive system, SIV (Sistema de incentivos para la vivienda) with the objective to provide a financial assistance to low income families for housing construction or improvement.

At the local level, the Municipality of Guayaquil faced more than two decades ago the recovery of the city from decay, in administrative, financial and economical terms. A main project considered as a starting point for the re-development of the city was proposed: the project "Malecon 2000". The objective of the project was the re-development of the water front and center of the city. For that project, a more broad definition of stakeholders was used; involving the main representatives of civil society, designers, central and local government, private contractors, planners, project developers, social organizations, but excluding one of the most important group: the inhabitants of the city. A new form of public-private partnership was used for the "Malecon 2000" project, involving for the first time private donors to finance public goods.

Regarding social housing projects some initiatives have been already proposed by the Local and Central Government. One of those projects (proposed and implemented by the Local Government) was "Mucho Lote" project intended for 14.383 dwelling units; it was implemented and built in an area of 189 ha, with green and communal areas and basic infrastructure. This project targeted the low and medium income groups of the population, considering as part of this category to those persons who have a monthly income between $240 or less and $600 (Municipality of Guayaquil 2008). Following this project, other social housing projects were promoted by the Municipality and are actually under implementation, like "Mi Lote" project, to be implemented in an area of 107,1 ha. The Central Government through the Minister of Housing is actually also acting as a promoter and developer of an urban housing project in Guayaquil called "Socio Vivienda", which is going to be implemented in an area of 38,7 ha. Thus, both the local as well as the central government could act as regulators and developers of social housing projects.

2.3 Identification of stakeholders expectations

The study groups the stakeholders mentioned above into two main groups, but may also encompass other key groups. Leading one group are the housing **end users** that could also include community organizations and social associations and at the other side are the **developers**, which could include local or central government, building contractors, land owners, educational institutions. These stakeholders have different expectations that are going to be reflected in the model. For **end users** one of their main expectations is to get good quality and affordable houses and for developers to get appropriate profits.

There are stakeholders whose expectations may not be reflected directly in the output of the model but that even though can be indirectly reach as for example the local government, whose expectations could be to impulse an appropriate urban growth of the city and collect enough taxes coming from permits and legal procedures but also to obtain as a developer appropriate profits from projects. For materials providers the outputs of the model are reflected in the number of houses that could be provided and in consequence in the amount of housing materials that they could sell. Designers and contractors could check the impact of choices over the final profitability of the project. Financial institutions could compare investment possibilities in accordance with model output parameters. To give a complete description of the different and multiple objectives that each stakeholder could have in this specific context is beyond the scope of this paper, but to develop a model that could help them to check and compare options for the development of an urban project. In that sense the **role of the model** in the corresponding decision-making process is to help different stakeholders to evaluate possible decisions and options of different input parameters included in the model. Those inputs could be included by each actor individually or jointly and can be used for the negotiations between actors. The model is just the tool that stakeholders could use for reviewing outputs of their decisions. Therefore last decisions concerning practical applications of the model will have to be taken jointly between main stakeholders involved.

3. METHODOLOGY AND DATA COLLECTION

For the development of the model a "methodological pluralism" is used, considering this research as an interdisciplinary study that could be enriched by the use of multiple research methods. In this study this term is understood as the use of different research methodologies that are seen as complementary, leading to a coherent cumulative knowledge building (Kirsch and Sullivan 1992). This research is based on literature review, a case study involving field work and a simulation model. Firstly the study is based on literature review of the general topic (Green and Ortuzar 2002; Makowsky 1999) and of local publications (as national journals, magazines, and technical publications). Then a Case study was used, which is located in the city of Guayaquil-Ecuador for testing the simulation model, based in the *Element Method for Cost Control* (De Troyer 1990). For the data employed in the model primary and secondary sources were used, besides a field work used to picture preferences and willingness to pay of possible inhabitants.

Primary sources of data were used as local technical publications (national journals, magazines, and technical publications) and secondary as informal interviews with public policy makers, private developers, and housing users, policy regulators and the city planners. A field work based on a pilot project was also undertaken in order

to test user's preferences and willingness to pay and to try to incorporate useful data for the model. Data from field work was used in the model to determine market prices and to make quality evaluations based in housing demand. The model requires the following kind of input data: Project design parameters (housing and urban level); development and construction costs; market prices; quality evaluation data (based in housing demand); and financial conditions for the possible owner.

3.1 The project pilot field work: This survey pilot project was made in the city of Guayaquil-Ecuador for three low medium income groups of the population. For this survey the **Contingent Valuation Method** (CVM) was used, in order to elicit preferences directly through the questioning of individuals on their willingness to pay (WTP) for housing characteristics. This method is referred to as a "stated preference" method, because it asks people to directly state their values, rather than inferring values from actual choices, as the "revealed preference" methods does. The fact that this method is based on what people say they would do, as opposed to what people are observed to do, it is the source of its greatest strengths and weaknesses. (Turner, et al. 2004). The necessity to find an appropriate manner of formulating questions to people about their willingness to pay for a certain housing characteristic was one of the main difficulties of this study. Questionnaires had to be carefully prepared. For eliciting respondent's choices or preferences a **hybrid approach**, as a **"payment card"** was prepared. Respondents were shown for each housing characteristic different possible options and it was showed to them a list of possible answers- a "payment card"- payment alternatives and asked them to indicate their choice. A provisional list of housing characteristics based on primary and secondary sources was offered to the housing users (fig.1). Three main groups were derived: (1) Layouts of houses and urban environment; (2) Technical choices- materials and (3) Location of the project. A total of 60 semi-structured interviews were conducted in several parts of the city and additionally 20 housing experts were interviewed. Interviews of the users were conducted in three groups chosen based on their relevant socio-characteristics for this study: (1) a group of users and (2) future users of social housing projects and (3) users from a marginal area of the city. This last group was interviewed about what would be more preferable for them in order to move to a formal social housing project.

1 LAYOUTS		2 TECHNICAL CHOICES			3 LOCATION OF THE PROJECT	
2.2 Housing level		**Elementh**	**Sub-Elementh**	**Material**	**Distance to the center oif the city**	
	Size of the plot	Floors:	Finishes	Cement	by public transportation	
	Housing typology			Tiles		Between 30-40 minutes
	Number of floors			Ceramics		Between 40 and 1 hour
	Number of rooms	Walls:	Main material	Prefabricated cardboard		More than 1 hour
	Internal functional design			Prefabricated concrete	Embebment in the urban fabric	
	Expansion possibilities			Concrete blockis	Road infrastructure	
				Bricks	Basic infrastructure	Water supply
1.2 Urban environment level			Exterior finish	Without finish		Electricity
Urban equipment	Green areas			Plaster		Sweage system
	Sport facilities			Plaster and painting		drainagg system
	Communal centers		Interior finish	Without finish		Telephone
	Health centers			Plaster		Garbache recolection
	Schools			Plaster and painting	Natural conditions	Landscape characteristics
	Commercial areas	Roof		Fiber cement sheets		Soil conditions
	Stop buses			Metalic sheed		Natural drainages of rain water
Road infrastructure-typologies:				Clay tiles		Micro climate
	Aspahlt			Asbest cement	Contamination sources	
	Aspahlt with green areas	Ceiling		Cardboard	Main projects of the city	
	Adoquines with green areas			Gypsum		
	Concret with green areas	Bathroom	Walls	Without finish		
				Plaster and painting		
				Ceramic tiles		
			Sanitary appliances			
				Economic		
				Semi-economic		
		Kitchen	Walls	Without finish		
				Plaster and painting		
			Kitchen board	Without finish		
				Plaster and painting		
				Ceramic tiles		

Figure 1: Provisional list of housing characteristics

First the interviewed persons were asked to identify the housing characteristics that they find the most relevant for a housing project, in order to "test" the relative importance of those housing characteristics. A system of score points evaluations was showed to the users. They express their choices on a rating scale (from 1-5) making the selection based on their own values and on the importance granted by them to housing characteristics. Then, users

were also asked to try to determine until what extend they are willing and able to pay for different additional housing characteristics. For this a "basic" price for a housing unit was determined based on local market prices. Adjustments to this basic price by changing and adding different housing characteristics have been elaborated. The persons were asked to select different alternatives of additional characteristics from a basic housing type (36 m² of floor area, 3 rooms, 1 toilet, basic sanitary and electrical installations, plastered walls and tiled roof). They were able to check the resulting price of the house and monthly payments due to the options chosen and they were also able to give up choices and interchanged housing characteristics when it seems for them unaffordable or not desirable. Variations on monthly payments under different financing mechanisms were also presented to the interviewed persons. As a result of the interviews a set of combination of additional characteristics selected by each individual over a basic housing type was obtained.

4. DESCRIPTION OF THE MODEL

The model is developed to try to help stakeholders to deal with basically three types of concern: the quality of life to be provided by the project at their urban and housing levels; the overall financial feasibility of the project; and the affordability of the housing units for the intended target groups The model is conceptually based on five basic issues of housing:

- **Design:** for urban site and housing units.
- **Costs:** development costs, infrastructure cost and housing costs.
- **Market prices:** housing prices based on quality evaluations in a given environment.
- **Project investments:** with profitability margins, based on cost and prices for housing units, housing area; commercial, communal, green and circulation areas.
- **Affordability:** for potential users.

4.1. Parts of the model

These issues are going to be displayed in a main part of the model for first estimations, related with basic data (A) as well as in additional parts: sub-models (B),
with more detailed calculations concerning: layouts, cost analysis, quality analysis, phasing investments and affordability. Thus, the model can be used in two ways: (1) as a tool for having a first general idea of the potential investments of the project and (2) later for more detailed calculations and following up of the project. In fact, the approach of using initial basic data may be adequate in many cases, at least for an initial run of the model.

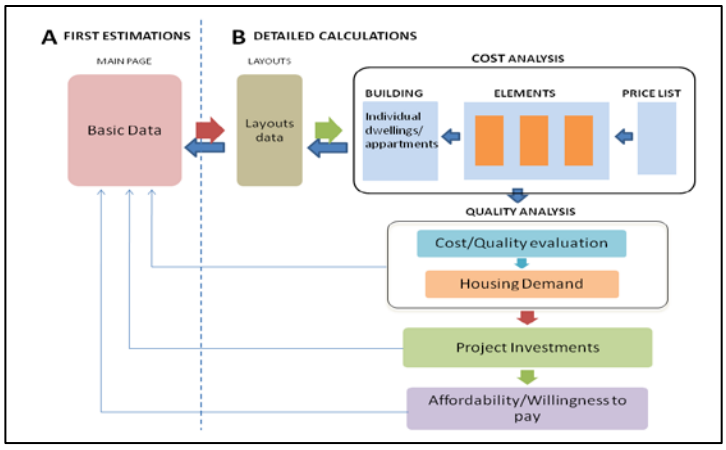

Figure 2: Conceptual flow of the model

Main part: first estimations (A): Most of basic data that the user of the model enters as input parameters in the "Main" part is also automatically linked with additional parts: sub-models. Those parts could be directly included

in the same file of the model or could be considered as sub-models for posterior further developments. Resulting outputs of the main part are based on estimates using the basic data of first estimations (A). A comparison between estimated and more detailed calculations is also possible in this part, since outputs of estimates of basic data and those coming from more detailed parts (B) are showed simultaneously in a main page corresponding to this first part of the model.

Additional parts: sub-models (B): Detailed calculations concerning more extended parts of the model are considered, such as: Cost analysis of housing typologies, Layouts, quality evaluations, housing demand, phasing investments, and affordability. The aim of this part is to give more accurate calculations for the different parts to the users of the model. Basic data is extracted from the "Main" part on global estimations, but more additional parameters should be input.

4.2. Basis description and overview

The five basic issues of housing forming the basis of the model are: design, costs, market prices, project investments and affordability. The description of each of these issues and their presence in the two parts of the model (A: first estimations & B: detailed calculations) is explained in the following points, besides data requirements:

4.2.1. Design: The model is based on decisions regarding the design of urban development and housing units. To understand how the model works, it is useful to suppose that a piece of land has been identified as the potential site for a new housing scheme. In due course detailed calculations for the project could be done, but in the meantime, stakeholders would like to examine some of the potential tradeoffs in design, financing and so forth. The first question to be raised is how much land is going to be allocated for the different land uses, such as housing, commercial uses, green areas, community facilities. Second how many plots and of what size are going to be made available for housing; and what area needs to be set aside for vehicular and pedestrian circulation.

Thus, data concerning design options for the urban site and housing units has to be entered as total area and percentage of housing area, percentages of plots area for housing typology, plots dimensions, number of plots per building fragment, number of building fragment per cluster, width of streets. Besides data concerning the dwelling, as the distance from plots limits to houses, number of floors, number of apartments per floor has also to be entered in the model. After calculations, outputs concerning m2 of floor area for each housing typology are showed. Based on those outputs the rest of non-housing areas (green, commercial, social and circulation areas) are going to be defined. Different housing levels are defined starting from plot size, housing unit, and those resulting from the combination of different spatial arrangements of plots, buildings and streets of a neighbourhood.

Design parameters at the different housing levels are defined." The Elementh Method" (De Troyer 1990) provides the basis for those definitions. An additional section of the Design issue of the model is considered in a **"Layout"** part regarding detailed calculations over the distribution of plots and dwelling units concerning houses and apartments at the building and neighbourhood level.

4.2.2. Costs: Urban cost data referring to preliminary costs, land acquisition, site preparation, taxes and administrative costs, infrastructure, land and facilities for commercial and communal uses, green areas has to be included in this part of the model. For housing costs data of estimated or referential costs for plots and houses has to be entered. The outputs of this part are showed as costs estimates based on market cost and cost coming from more detailed parts of the model using the "Element Method" of Cost Control. Cost simulations using this method are employed in more detailed parts of the model concerning more detailed calculations and could be considered independently and developed as sub-models. Simulations are based on an extended database of prices for the different elements and sub-elements required for the estimation of the cost of a house. Detailed cost calculations are elaborated for each housing level. Each element is constituted of "work sections" selected from the database. The elements are defined in such a way that these are as independent as possible, different possible combinations of materials for elements and sub-elements are therefore possible (De Troyer 1990). For each element the cost is defined and finally elements are combined at the building level. This allows for reviewing the effect of changes regarding the type of materials, construction technologies and layouts upon the final cost of a

dwelling type. Cost analysis of housing typologies are made concerning: Price list, (16)Foundation, (16)Shared Foundation, (13)Ground Floor, (14)Stairs, (21)External walls, (21) Shared walls, (22)Internal walls, (23)Suspended floor, (31)Windows, (32)External doors, (32)Internal walls, (5-)Sanitary, (6-)Electrical, (0)Residential land, (0)Infrastructure W, (0)Infrastructure D.

4.2.3. Market Prices: Data concerning estimated market prices for commercial, communal plots, commercial and communal buildings, besides estimates of market prices for housing plots and houses has to be entered. Detailed calculations of market selling prices are determined based on quality evaluations. The quality evaluations could be considered also as sub-models for further developments. For the elaboration of those quality evaluations methods and main assumptions are explained**:**

4.2.3.1 Methods and main assumptions: Methods for interpreting the results of the field work and main assumptions used for quality evaluations are: WTP (willingness to pay) curves and housing demand curves.
WTP (willingness to pay) curves are based on the assumption that for housing units (including plot characteristics, location and urban environmental characteristics) the total quality is the sum of the quality scores on the different aspects of housing characteristics as mentioned in fig.1 of part 3.1 of the project pilot field work. For each quality score the hypothesis is made that there are "diminishing marginal increases of quality" for additional spending on that item, by hypothesis represented by the following function:

$$WTP = a_n * X_n\text{^}(b_n) \qquad 0 < b_n < 1 \qquad (1)$$

Where a represents a proportional term (for example, m2 or number of housing option), X is the additional cost on considered item (minimum \$1) and b is an exponent for item *n* based on the expressed people's preference. Then the total amount the average end user is willing to pay is thus expressed by the formula:

$$WTPtot = H_u + L_a + \sum \ (a_1 * X_1\text{^}(b_1) + (a_2 * X_2\text{^}(b_2) + (a_3 * X_3\text{^}(b_3) + \cdots \qquad (2)$$

Where *WTPtot* market housing prices is a linear function of quality points for houses, land, and housing characteristics and where H_u and L_a are constants and represents the basic housing and land costs, plus the bundle of housing characteristics.

Demand curves are based on the assumption that if the number of houses provided to the market in a given period is increased a reduction of the selling price of the houses should be accepted. A minimum housing price is based on the assumption that a maximum number of houses could be provided. Whereas a maximum housing price is the result of the provision of a minimum number of houses. A slope formula is used for this linear relation:

$$Slope = \frac{\text{Minimun price} - \text{Maximum price}}{\text{Maximun number of houses} - \text{Minimun number of houses}} \qquad (3)$$

Based on that slope it is possible to calculate any point that it is located on that curve, with the formula:

$$Selling\ price\ = Selling\ price\ of\ 1\ house + (Number\ of\ units\ provided - Minimum\ number\ of\ units) * Slope \qquad (4)$$

4.2.3.2 Quality evaluations: Quality evaluations carried out for this research refers to evaluations made to estimate a market price based on users preferences. Two main evaluations were made. In the preliminary survey for each variant of the considered aspect of a housing characteristic (for example, for plots different sizes and layouts were presented, for urban environment different possibilities of urban facilities and for technical characteristics 2 or 3 additional kinds of finishes) people were asked what they would select given a fixed cost (based on present day market prices) and on their available means. The outcomes are represented by **WTP curves** (fig. 3), showing graphically the additional value on top of the market price that could be asked for each housing characteristics. Alternatives are represented on increasing cost and frequency for the added selection. If for a given price many households are selecting and alternative an estimation is made that for a higher price people will still buy it. In the curves used in this research an attribute looses importance after a certain level is reached. For example for the users of this case study it was showed an option of increasing the amount of green

spaces in the surrounding area of their homes (6 blocks away), from 3 to 8 %. They demonstrate willingness to pay until 10% more of the normal price of the house for having a house in a neighbourhood with this improved characteristic. The increased percentage on willingness to pay represents the highest point or points of a value-WTP curve and it is considered in this research as the maximum amount of money that people will be willing to pay for a certain housing characteristic. But after that point the characteristic may be not more interesting for them and their willingness to pay could be reduced or kept constant. Data concerning the maximum points of the curves for each urban housing characteristic will be used as inputs for estimating market selling prices in the development of the model.

After the estimations of WTP for each housing parameter it was calculated the **total WTP or additional price** to be paid for a housing unit. For that equation (2) was used, considering total price as the sum of price-value attached to the combination of most preferred housing parameters. After this, a second evaluation is made regarding housing demand expressed in **housing demand curves** per each housing typology and for each target group. For this part the formulas (3) and (4) indicated in the part 4.2.3.1 of methods and main assumptions should be used. From those curves it is possible to predict a reduction price in accordance with the number of units supplied on the market per period. This data concerning reduction prices is also going to be input in the model for the estimation of housing market selling prices.

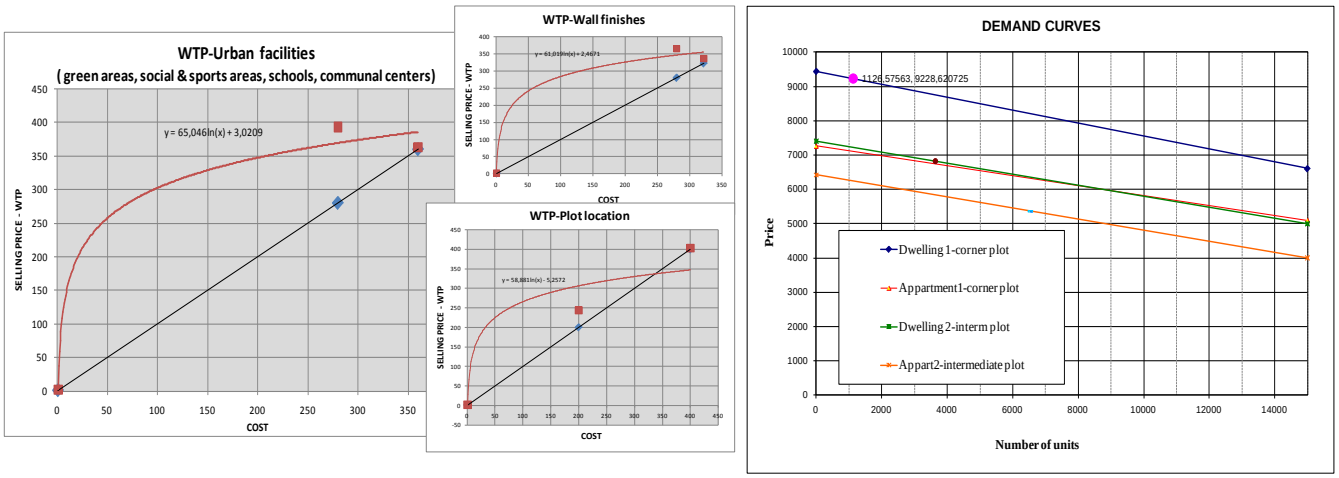

Figure 3: Quality evaluations: WTP curves of housing characteristics and demand curves by housing type

4.2.4. Project investments: The market selling prices obtained after using the demand curves and quality scores are employed in a time cash flow for considering investment possibilities, in order to show how much money will be required to finance the deficit between expenses and income upon time. Results of profitability margins and return on investments are shown as the consequences of all the previous decisions made at the design, costs and market prices phases. Main outputs of this part are profitability of the project, internal rate of return, and RFF.

4.2.5. Affordability: The affordability for the population is considered through housing annuities for different income groups considering their financial possibilities. Although people generally prefer to select as many options are possible, they are less interested to do it if also that means an increase in price (Hofman et al. 2006). The affordability is tested under varying options of loan terms, interest rates, and progression rates. For considering housing annuities also data extracted from the survey is used regarding capacity and willingness to pay. These last two issues could be considered as highly influenced by income category , but another factors such as size of family, ages, education, values and goals in life (Linderg et al. 1998) can have a greater influence over preferences for housing characteristics. Affordability for each income group is considered as the budget restriction to be used in determining the range of maximum quality points that may lead to the optimal combination of preferred housing characteristics.

5. MAIN FINDINGS

One of the main findings of this research is about the identification of main preferable attributes by housing users and the employment of alternatives methods to incorporate this data into the model. Results based on provisional estimations indicate that housing users highly value amenities such as urban environment, floor finishes, plot location, soil conditions, rain drainages and location in relation to main city projects. Special attention should be lay over those identified housing characteristics that could not be easily changed over time (layout, plot size) and those that could be more easily changed (technical finishes). These characteristics should be considered for an in depth analysis on future housing projects. The use of this data in the model allows analyzing the most optimal and preferred combination of housing characteristics that could lead to the maximum budget and to get the satisfaction of involved stakeholders.

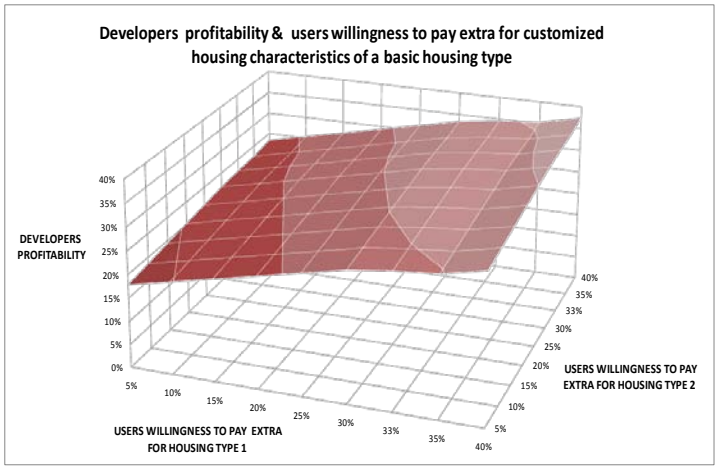

Figure 4: Developers profitability and users willingness to pay

Based on the field work carry out for this study it was possible to estimate the willingness to pay for customized housing characteristics based on a basic housing type. From the groups interviewed for this research it was found that they were willing to pay extra an average of 33% for customized housing characteristics over a basic housing type. Figure 4 shows results of the model using information from the field work regarding willingness to pay of housing users. The maximum estimated percentage of willingness to pay was based on a basic housing type. For testing the model another housing type was derived from the basic one. The additional value translated in the extra percentage over the basic housing price that users are willing to pay means an increase in profitability for developers that is in direct relation with the acceptability of the project for the future users.

6. CONCLUSIONS: LIMITATIONS, CONTRIBUTION AND POSSIBILITIES

Main limitation of this study is that the data was obtained from a field work made on a small-scale, thus the proposed model must be further validated in future research. Nevertheless findings were considered to be sufficient as a first approximation for the understanding of the problem and to define a starting point for further research. Another limitation is about the use of the model between the different actors involved. The model is intended to be used as a tool for the stakeholders involved (individually or jointly) for reviewing options about the inclusion of input parameters in the planning process of an urban housing project. It is not intended to replace judgment, experiences or the negotiation and managerial skills of the stakeholders involved. What the model can do as others like this, it is to illuminate the choices and tradeoffs that are involved in the planning and in the negotiation process of a project. Furthermore, care should be taken for interpreting results coming from data collected through a Stated Preference Method, as answers from respondents could be strongly conditioned by other variables such as the financial payment possibility offered to them as well as to their economical, cultural and social condition. The main contribution of this study regarding originality and novelty in relation with the analyzed case study is that as far as known by the author this is the first attempt to incorporate value (based on the willingness to pay of users and future users of a project for housing characteristics) as quantifiable input

parameters in a model for project development in this specific context. The research attempts to give contributions about alternative ways to link the subjective side of quality (including people's preferences) with the objective side (budget constraints and prices) and to incorporate those values in a model. Results attained by the model will allow to developers and house builders to check options of increased profitability meanwhile permitting users to obtain a better trade-off of price and quality for affordable housing units.

Using data from an exploratory study the model was used for analyzing the optimal combination of characteristics that could lead to a maximum profit. That optimal combination is the result of the optimization of input parameters entered by different stakeholders and it is highly determined by quality evaluations based on user's preferences (central in the development of new projects) and willingness to pay. Model results support that statement. Further developments should be made about how to elicit people's preferences and in continuing to address the issue of the proper influence of the various stakeholders to the project. Nevertheless based on this exploratory study it may be possible to offer some insight for identifying preferred housing characteristics and for using alternatives ways to include those preferences and values as quantitative parameters in a model. The additional value that could be added to projects can be defined as the difference on price that people based on their own preferences are willing to pay for housing characteristics. This difference between perceived customer value and price asked for a housing unit could be used as a measure of the incentive for the people for buying a specific house. Developers, planners and house builders should follow strategies of maximizing this difference in order to obtain return on their investments, more reasonable profits for social housing projects and to provide better and affordable houses for the users.

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