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Uncovering the heterogeneity of real estate developers in the canton Zurich

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Abstract

This paper describes the qualitative study of real estate developers in the canton Zurich. The introduction explains the motivation for this research in the context of land use modelling. In the second section we refer to previous work and introduce briefly the research methodology of qualitative content analysis. How this method is put to practice in our case is described in section 3 followed by the results.

We find varying behaviour of developers according to the variables *purpose* and *professionalism* in terms of decision criteria, information considered and executed tasks within the development process.

Keywords

Real Estate Developers; In-depth Interviews; Qualitative Content Analysis; Zurich

Preferred citation style

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Executive summary

This work intends to improve land use transport interaction models by studying the supply side of real estate markets. Thus we focus on real estate developers and the projects they carry out. The working hypothesis is that heterogeneous developers are present and that their characteristics help to explain development events. We approach the hypothesis in three steps: Firstly a literature review is carried out, secondly we conduct a sample of in-depth interviews and thirdly we will estimate discrete choice models. This paper reports on the qualitative part of the in-depth interviews.

In literature we find studies in Switzerland (van Wezemael, 2005; Ott et al., 2005; Schüssler and Thalmann, 2005; Friedrich, 2004) and elsewhere (Ruming, 2010; Ball, 2003; Coiacetto, 2007, 2001) which discuss heterogeneous developers and their influence on land development. Besides these qualitative studies we find only 2 studies which incorporate information on developers in quantitative models (Dong and Gliebe, 2011; Haider and Miller, 2004). The main conclusions from the literature review are that there is a lack of knowledge in respect of the supply side of land development, that heterogeneity among real estate developers is shown in previous studies and that there is no established typology.

The qualitative study shall inform the quantitative modelling. Therefore, we derive the theoretical framework for the in-depth interviews on the basis of the literature and the review of the obtained dataset, which will be used for the quantitative models. The obtained dataset holds contact details of home-builders and development service providers of which we extracted 70. We applied a stratified sampling to cover 3 a priori defined developer types. In addition we extracted the ten most frequent developers in the study area. 11 interviewees are recruited, covering all three developer types. The interviews are semi structured following a guideline with 5 sections on the developer's characteristics, the decision process, the projects, the project locations and the assessment of market conditions. The analysis of the extracted information compares the interviewed developers and relates observed characteristics with behavioural aspects. The methodological approach is adapted from Gläser and Laudel (2004).

We find that typologies in literature are confirmed. The behaviour of developers varies in terms of decision criteria, considered information base, search space and fulfilled tasks. The last point hints at development networks and shows to some extent how the developer is embedded within these networks.

1 Introduction

The working hypothesis is that real estate developers influence spatial development because they supply built space. We see the developers as driving and mediating forces because they are the actors that decide on development projects and they are responsible for the development work. Previous research showed that there is variety among developers which lets us further assume that the composition of developer types present in an area has an impact on the built space provided. We want to embed this idea in an multi-agent land use transport interaction model because it seems straight forward to introduce developer agents into the microsimulation framework. The conceptual model is presented in Zöllig and Axhausen (2011).

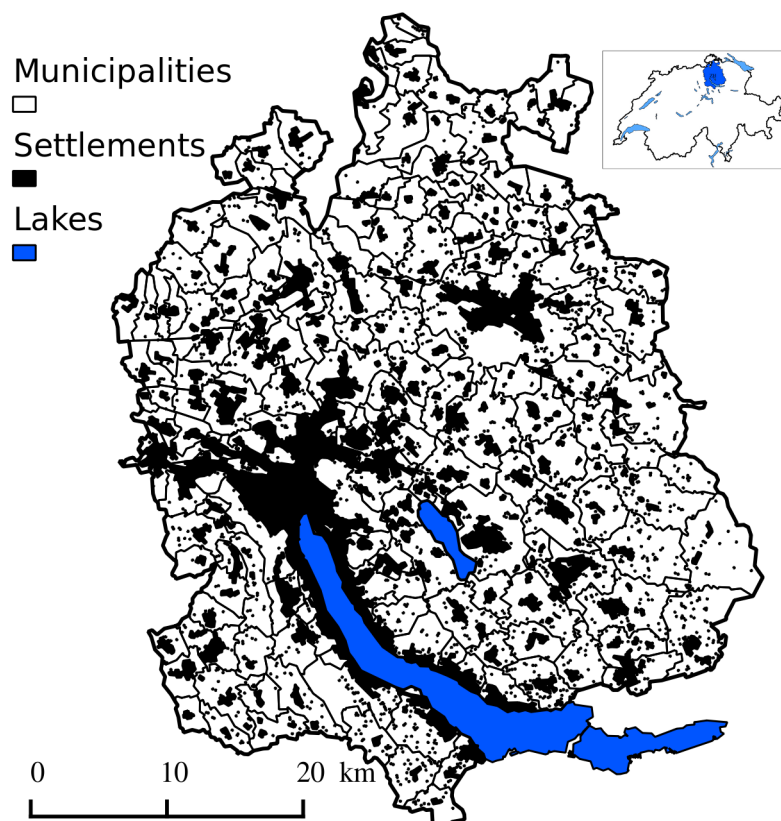
To investigate the above mentioned assumption the research plan comprised three major steps. The first step is carry out a qualitative analysis of developer types present in the study area. The second step is to estimate quantitative discrete choice models on the basis of data on development events, developers, buildings and spatial context of the development events. Step three is to simulate different scenarios according to assumed developer compositions.

This paper wants to inform the quantitative modelling in respect of possible attributes of developers to consider. The main hypothesis to be tested in the qualitative study and later on in the quantitative study is that developer types do have an influence on the development events that eventually occur.

In our case study the land use transport interaction model is set up for the canton Zurich shown in figure 1. The canton Zurich is located in the North-East of Switzerland and includes two major cities (Zurich and Winterthur) as well as the most important airport of Switzerland. The canton has a strong economy in comparison to other Swiss cantons and thus a dynamic spatial development. A better description of the study area in respect of the development industry is given in Zöllig and Axhausen (2011).

Consequently, we focus on developers active in this area. To get in contact with these developers we bought a dataset with recorded development project announcements for the canton Zurich from 2000 until 2010. This dataset contains contact details of developers, planners and engineers. Further there is information on the development itself such as location (by address), realisation period, costs and size.

Figure 1 Canton Zurich



Source: Data © 2009 swisstopo (JD082776)

The paper is organised in four sections. The section 2 refers to previous work, clarifies the terminology and introduces the qualitative research method. The following section describes the research carried out in detail. In section 4 we present the results in form of summarising tables that relate characteristics of independent variables with behavioural characteristics for which the relations will be explained in a qualitative way. From this relations we draw our conclusion for how to integrate characteristics of developers in quantitative modelling.

2 Preliminary work and methodology

Preliminary work forming the context for this study is described by Zöllig and Axhausen (2011). In the following we give an update on two more typologies found in literature and list briefly the conclusions from the literature review.

Dong and Gliebe (2011) compare a multinomial logit (MNL) model with partially exogenous market segmentation (via interaction of explanatory variables with characteristics of developers and projects), pure random parameter logit (PRL) models and latent class models with endogenous market segmentation. The external segments for the MNL and RPL models are single family household projects and multi family household projects. The latent classes are based on the variables *developer size*, *project size*, *contract type*, *specialisation*. The findings are clear taste variations across developers in which the taste for housing projects varies as well, indicating specialisation for certain projects.

Waddell (2011) identifies *fee developers* and *speculative developers* according to the predetermined aspects of a deal, namely land and tenant. In his definition fee developers are characterised by the fact that the land where the development should take place is given. He sees four different development opportunities which can be seen as market segments. The developer types can be active in all market segments.

Given these additional typologies the main conclusions from the literature reviews are:

1. There is a lack of knowledge in respect of the supply side of land development.
2. Heterogeneity among real estate developers is shown in various studies.
3. There is no established typology.

Qualitative research methodology

The core of the methodology is the extraction and analysis of relevant information gained in in-depth personal interviews. The interviews are open and semi-standardised. Following the classification of Mayring (2002) the survey method is a problem centric interview. Accordances and differences to the defined theoretical framework are filtered out in the analysis and thus the theory based typology can be confirmed or dismissed. The methodology covers the whole research process with the following main steps and methods which are described in detail in Gläser and Laudel (2004):

1. Preparation (theoretical developments)
 - 1.1. Formulation of research question
 - 1.2. Decision on explanatory strategy, based on theoretical framework (relating independent with dependent variables)
2. In-depth personal interviews (data collection)
3. Qualitative analysis of content (data analysis)
 - 3.1. Extraction of content
 - a) Creation of extraction raster, based on hypothesised independent variables
 - b) Extraction of characteristics of independent and dependent variables (reported relations are also extracted)
 - 3.2. Preparation of content (organising extracted information such that the material can be analysed)
 - 3.3. Analysis of content
4. Interpretation

3 Qualitative analysis of real estate developers in the canton Zurich

This section describes in detail how the qualitative research approach briefly introduced above is put to practice in our study.

Preparation

The main research question is how urban land use changes. As we are working with multi-agent models of transport and land use most of the explanatory strategy is given. The research questions of this paper follow from the decision to explain the development process on the basis of developer agents. The research questions are:

1. Is it justified to assume different behaviour between the developer types defined in table 1?
2. What are the behavioural differences in respect of decision criteria, underlying information and considered alternatives?
3. Can we apply a useful typology to our data? Is the typology based on the data the same as the typology on the basis of the interviews?

Following from the literature review and the data for the planned quantitative analysis the research strategy is to confirm different behaviour of developer types according to the variables and indicators we find in our data. The qualitative work here has to be seen in the context of the quantitative data analysis. In our case the interviews shall help in particular to confirm different developer behaviour for the hypothesised typology shown in table 1 below which is applicable to the data from DOCUMENTA. Thus the interviews shall investigate the behavioural differences between these developer types. We try to relate attributes of the developers with attributes of their decision making.

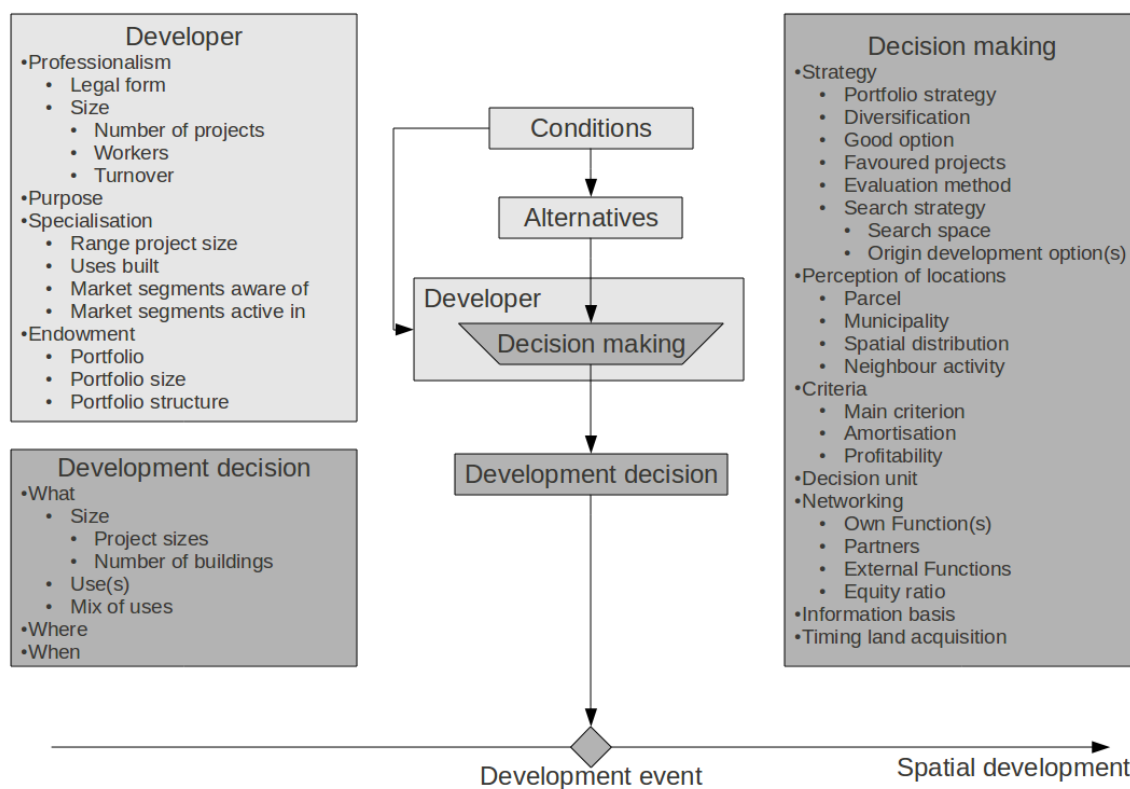
Table 1 Identification of developer types in DOCUMEDIA data

Developer type code	Developer type name	Attribute purpose	Number of projects
O1	Self-owning without portfolio strategy ¹	Own use or letting	1
Om	Self-owning with portfolio strategy	Own use and or letting	Several
Smc	Commercial developer (Promoter)	Sale	Several or 1

Theoretical framework and explanatory strategy

From literature review, the background of discrete choice modelling and the data at hand we derive the theoretical framework pictured in figure 2.

Figure 2 Theoretical framework of real estate developers and the development process



¹ In the housing / building market

The independent components and assigned variables are shown in light grey whereas dependent variables are shown in dark grey. The independent variables are related to the dependent variables through the decision process which is shown in the centre of the figure. The first level of the bullet list shows the variable, the second level the dimension and the third level the indicators. The crudely scratched process starts with the general conditions which impact all alternatives and the developers. This can be an economic decline, a natural hazard or changed policies. The confrontation of alternatives and the developers result in a decision situation which can be seen as filtering of the alternatives symbolised with the trapezoid.

The decision making is supposed to be dependent on the characteristics of the developer. The reasoning is that the developer is an actor with a certain degree of professionalism, a purpose, given specialisation and a certain endowment. For instance we can assume that a developer with high professionalism (public limited company, dozens of projects each year and millions of turnover) is able to invest more resources for the search of new locations and can be active in a wider market area. Also such a developer probably will have a good information base in terms of data and also know-how in-house or via business corporations. With the legal form a developer agrees to follow given regulations which can only be fulfilled with a certain degree of professionalism. The applicable regulations can have direct consequences for the decision making when some alternatives are excluded by this regulations.

The development decision is the consequence of the decision making. This shows that the relation between the developers characteristics and the development decision is explained with the decision making. The relation of the decision making to the developed projects is left to quantitative analysis. Here we focus on the relation between characteristics of the developer and the decision behaviour only.

Terminology

With this theoretical framework we also want to clarify the terminology. These main components that constitute the development process are the general conditions, the alternatives and the developer with its decision making.

In this theoretical framework we understand the developer as the entity which takes the final development decision. With this definition we assume that the developer has the relevant information at his disposal. This must not mean that this actor does the preparation work himself. The actor which carries out most of the development work in terms of planning and project management can also be a service provider. Thus we can have the distinction of owner and development service provider with a development service contract. Therefore, we might

also refer to this actor as contractor. However, for reasons of simplification we subsume the deciding actor and the actor that functions as development service provider. We will discuss this issue in the conclusions.

The decision making is the evaluation method of the developer to sort out its favoured alternative. The alternatives are combinations of development sites and development projects. The development sites are parcels in the study area. These parcels are characterised by variables such as geometry, slope and radiation index. In addition they can be attributed with characteristics of their surroundings. From the behavioural point of view we are interested in the perception of these characteristics, which is why we assign this variable to the decision making of the developer.

These components are described in more detail with the variables shown in the grey boxes on each side. The definition of the variables (first level of bullet list) is given by their dimensions (second level of bullet list) which can additionally be detailed in terms of indicators (third level of bullet list).

Create interview guideline

The interview guideline is created on the basis of the explanatory strategy and thus targets the independent and dependent variables. The interview guideline is organised in five sections:

1. Characteristics of the developer
2. Decision process
3. The type of projects
4. Location choice for projects
5. Assessment of market conditions

Because of different vocabularies used it seemed appropriate to design a questionnaire for commercial real estate developers and private persons (home-builder). Otherwise some questions would have been formulated quite misleading.

Recruitment of interviewees

The aim is to interview 10 developers and a least one developer of each assumed developer types. Therefore, we group the contact details of the DOCUMEDIA data according to our definition of developer types². From these groups we randomly sample 20 candidates for re-

² Defined in table 1.

cruitment. In addition we selected the top 10 developers in terms of number of projects to reach the most active developers in the study area. To reach developers with fresh memories on their development projects, we only considered contact details of interview candidates that submitted a project proposal during the most recent year the data covers³. To avoid contacting developers with small projects we excluded contact details from projects not of type *new development*.

The first contact is made with a phone call which required the telephone number to be present in the contact details. We used the contact details of the home-builder because we assume that the final decision on a development is made by the owner. A priori it was not possible to say which contacts would be willing to participate. We tried to encourage participation with flexibility according to the interview mode offering telephone interview or direct interview as possibilities. The availability of candidates was considered with calling businesses during the day and private households in the early evening. When the candidate agrees to participate in the survey he is asked for the current e-mail address for having the interview guideline sent by mail. This shall allow a more informed decision on participation and preparation for the interview. The decision whether to send the questionnaire for commercial developers or private persons was made upon the information of the recruitment call and the DOCUMEDIA data. A private persons name in the field *bhname* and only one project in the last three years indicates that a developer is not professional and therefore a questionnaire for private persons is more adequate. If possible the meeting was arranged with the first call, otherwise the candidate was given the possibility to communicate possible appointments later on.

Conducting the interviews

The telephone interviews are conducted using skype. This is convenient for several reasons:

1. Easy recording with *Skype call recorder*
2. The phone costs are low
3. The connection quality is good
4. Using a headset lets the hands free which allows taking notes more easily

To establish more trust a caller identification is set in the Skype account. This can be obtained on the Skype web page⁴. The verification is done by SMS, therefore only mobile phone numbers can be entered. When a direct interview is desired the recording is done with a digital au-

³ gesuchvom > 4.12.09

⁴ Log into account, select features, caller ID.

dio recorder. All 11 interviewees agreed on being recorded which is essential for the further processing.

The following table lists the conducted interviews and several parameters:

Table 2 Conducted interviews

Interviewee	Mode	Duration [hh:mm]	Status
1	Face-to-face	01:09	Analysed
2	Telephone	00:32	Analysed
3	Telephone	00:41	Analysed
4	Telephone	00:49	Analysed
5	Telephone	00:49	Analysed
6	Face-to-face	01:29	Analysed
7	Face-to-face	01:34	Analysed
8	Telephone	00:45	Transcribed
9	Telephone	00:29	Transcribed
10	Face-to-face	00:31	Transcribed
11	Telephone	01:03	Interviewed

Qualitative analysis of interviews

Transcription of interviews

All transcriptions are done by the same person. The interviewer checks the transcription for parts that were not understood by the transcriber and complements the text if possible. We decided to follow the recommendations of Gläser and Laudel (2004) including the usage of their set of transcription rules from page 188. In addition we define the following transcription rules:

1. Parts that are difficult to understand are marked with red brackets which indicates the runtime of the interview recording. (E.g. [13:45])
2. Names which are critical regarding anonymisation are marked in red font.
3. Special interview situations like misunderstandings are indicated in brackets. (E.g. [mis-understanding])

The transcriptions are not anonymised. The anonymisation is done with the extractions step. The transcription produced 118 pages of text that could be analysed in the following.

Qualitative analysis of contents

Creation of search raster

The search raster is created on the theoretical basis and extracts information on the dependent and independent variables. The idea is to filter the interview text with the extraction raster. A spread sheet was used as tool in which the rows are assigned to a variable and the columns are assigned to an interview. To make use of the structured interview guideline the sequence of the variables follows the order of the question the variables were targeted with.

Extraction

The characteristics of the variables of interest were extracted according to their definitions. Nevertheless, the decision on whether a piece of information is a characteristic of a given variable is to some extent subjective. Therefore, we keep the information before the extraction and index a particular piece of information with the reference the line number it is extracted from. This allows to trace back the information pieces. Generally, the variable dimensions considered have a nominal scale and are open which means that additional characteristics can be added. The collection of distributed information is done with the extraction by assigning relevant contents directly to the designated variable. Reported relations of variables are extracted as well.

The questions target a dimension of a variable which suggests to use the answers as unit of analysis. In the case of follow up questions it is especially important to reflect whether a new dimension or even a new variable must be added to the extraction raster and consequently as well to the theoretical framework.

In the direct interviews it was three times the case that the interviewees brought information material on paper referring to them during the interview. This information is included in the extraction. The reference to this sort of information follows the citation principles.

Preparation of content

The main task of preparing the extracted information is to reorganise the pieces of information to follow the theoretical framework of explanation. For this task the use of a spreadsheet was convenient. Further tasks are summarising contents that has been extracted multiple times in an interview and to correct spelling errors.

Analysis

For the analysis we compared the seven cases on the basis of selected independent variables contrasting them with selected dependent variables. The dependent variables are checked for similarities according to the independent variables which indicates a relation. We focus on the independent variables according to which we standardise the developers in table 1. In respect of the three levels of relations defined in Gläser and Laudel (2004, 241) we are primarily interested in relations of types which are based on similarities of relations. Other levels of relations would be reported relations and relations within a single case.

4 Differences in behaviour

The results section is organised according to the research questions formulated in section 3. We first show that the assumption of different behaviour can be confirmed with the comparison of mentioned criteria, information used for decision making and mentioned characteristics of alternatives. The second part of the results compares the typology on the basis of DOCUMENTA data only with the typology with additional information from the interviews. This is like a spot check of the semantics.

Different behaviour of developers

In the following we show that the decision making of developers varies along the independent variables of the assumed typology. The three variables we are interested in are purpose, professionalism and endowment.

Differences in respect of decision criteria

Table 3 shows the decision criteria mentioned by the interviewees according to different purposes.

Table 3 Purpose and decision criterion

Criterion	Purpose	
	Own use, letting	Sale
Main criterion	Availability of affordable land Keep value Cost-benefit ratio positive	Net present value > 0 Profit opportunities Secured demand Zoning with 3 stories Floor area ratio 0.6 Min. size 6000m ² High public transport accessibility Pop municipality > 3000 1% population growth during last 5 years Public transport access in municipality Highway exit closer than 2 kilometres
Payoff time	10-50 years	1-20 years
Profitability	-20-4 %	5-9%
Pre selling	N/A	30-70%

The responses of the interviewees confirm that developers with purpose sale are profit oriented and take more risk. The higher risk is taken into account and consequently a higher profitability and a shorter payoff time required. In case 3 the interviewee noted that the high risk of developments is likely to be compensated by good margins within project realisation. This was said to be a danger when unifying the whole development process inside one firm. This is probably a reason why firms tend to separate the development unit from the construction unit.

Differences in respect of underlying information

To show behavioural differences according to the variable *professionalism* we stylise the developers as *unprofessional* or *professional* like shown as table 4 below.

Table 4 Influence of professionalism on evaluation method and information base

		Unprofessional	Professional
Professionalism	Legal form	Private person	Company
	Number of projects	<5	>5

Number of workers	0	>0
Turnover	Small	More 1 Mio.

The differences in evaluation methods and the underlying information base for the development decision are shown in table 5.

Table 5 Differences according professionalism in evaluation methods and information base

	Unprofessional	Professional
Evaluation methods	Study advertisements Experience Looking around Ask around	GIS-Tools Price calculators Optimisation of budget and parcel Location analysis Market analysis Demographic analysis
Information base	Personal situation Conditions of parcel Internet Local knowledge Professionals	Press Noise cadastre Online markets Local knowledge Professional online services Professional reports Statistical offices Datasets of banks

We can see that the evaluation methods of professional developers are more data oriented. The professional developer must rely on these data sources because he would not be able to manage his work without more professional tools. This relates also to the size of the portfolios of letting developers and the activity space of selling developers (see table 4).

Professionals are also mentioned as information base. This shows that unprofessional developers are relying on professional services. On the other hand we note that professionals rely on information of other specialists like consulting firms or banks, which shows that professional developers offer development services or the development as a product. The comparison of executed tasks is supporting this reasoning (see table 8).

The more sophisticated evaluation methods of the professional developers result a wider information base. Professional developers extend the unprofessional information base by using data and data mining methods. They also buy prepared information from further service providers. The generated information from such data processing is in most cases compared to each other which increases reliability.

Differences in respect of considered alternatives

Table 8 below shows what variables the developers said they would consider for their location choice on the level of parcel and surroundings and the level of municipalities.

Table 6 Mentioned attributes of locations by purpose

Spatial unit	Purpose	
	Own use	Sale
Parcel	Size	Size
	Floor area ratio	Floor area ratio
	Centrality	
	Noise	Noise
	Sunshine	Sunshine
	Accessibility public transport, car	Accessibility public transport, car
	Access lake	Access lake
	Access job	Access jobs
	Access shop	Access shop
	Access recreation area	
	Access church	
	Zoning neighbouring parcels	Zoning neighbouring parcels
		Zoning
		Uses on neighbouring parcels
		Access school
		Electro smog
		Aesthetics neighbourhood
		View
		Soil condition
	Access children's playground	
	Nb of families in neighbourhood	
	Image of neighbourhood	
Municipality	Size of locality	Size of locality
	Tax level	Tax level
		Vacancy rate
		Close to economic centre
		Population growth
		Immigration of young households
		Rate of absorption
		Time of absorption
		Infrastructural developments
		Large scale developments
		Image of location
		Existence of lake
		Opening(s) of supermarkets
		Price level
	Share of foreigners in schools	

The quality of the mentioned location variables does not vary much from our point of view. We explain this finding with good expert knowledge of the selling developers about the drivers of selling prices.

The few attributes of municipalities considered by developers with purpose *own use* relates to the smaller search space of these developers and the immobility of the existing portfolios. In both cases they do not have to judge on the qualities of municipalities. The mentioned variables are showing that the size of a settlement and the tax level can have an impact on the location choice. The variables mentioned by selling developers show to some extent that these developers are looking at spatial market characteristics and that the municipality level is a aggregation unit considered.

Table 7 Differences according to professionalism in search spaces

	Unprofessional	Professional
Search strategy	Looking and asking around	Construction sites offered (passive) Systematic search with spatial analysis (active)
Search space	Local	Regional, international

The comparison of search strategies and search space is shown in table 7. We note again that the methods are more hand made in case of unprofessional developers. It is reasonable that developers with regional or national search spaces would be to inefficient when driving around. The search space of unprofessional developers is found to be local. This is consistent with findings of household location choice studies which show strong attachment to home locations. An interesting observation in case 2 was that passing of property or oven the experiences form growing up seem the be present in location choice. This might be especially true when settling down building one's own house.

Another interesting finding is that professional developers can profit in a passive way of getting development opportunities. In such cases they are contacted by property owner which want to sell their property or have it developed. This passive was of obtaining estates for development is only possible for actors that are known for their development skills. In case 7 it is mentioned that the active search is increasingly important which was in that case a consequence of outrunning development opportunities with in the own portfolio.

Differences in respect of fulfilled tasks

Table 8 shows all seven cases and what tasks they reported to fulfil during the development process. The table is organised in such a way that developers developing for own use are on the left side and selling developers on the right side. This time characteristics of the purpose attribute are at the bottom of the table because the tasks are ordered in respect of the decision process. Note that the dimension of the purpose variable is extended to reflect the finding that commercial developers can either sell a finished property or development services.

Table 8 Comparison of covered tasks in development process

Task	Case						
	2	1	6	4	3	5	7
Financing	x	x	x		(x)		
Search for location (Buy property)	x		x			(x)	x
Concept of use	x	x	x		(x)		(x)
Design				x		x	x
Construction management				x	x	x	x
Engineering					x		
Construction					x		x
Marketing						x	(x)
Sell property					x		x
Sell service				x		x	
Own use let	x	x					x
Own use		x	x				

Legend

optional function (x)

We can see that the tasks carried out are quite heterogeneous. A similarity is that developers with purpose *own use* are engaged in financing. Thus they are representing the demand side in a market where development services are traded.

On the opposite side we have the development service providers which have the coordination task construction management in common. This confirms the findings of Healey (1991) which defined the developer as coordination actor. In our terminology (which we have to adapt) this would be a development service provider.

Most of the commercial developers are also characterised by tasks they optionally carry out which indicates that they are pursuing multiple business cases adapted to certain situations. But nevertheless they see a principle purpose according to which they define their spectrum of tasks. This can be interpreted as specialisation. Uncovered tasks have to be organised on respective markets.

The condition that all tasks have to be carried out for the realisation of a development and the finding that none of the developers covers the full task spectrum shows that in all cases a network of actors exists. The above table shows the position (in terms of tasks carried out) of the developer inside such a development network. However, the complete network is unknown, but we have to assume that these networks are essential for the explanation of particular developments. Referring to the paragraph above we note that these developer networks are dynamic in the sense that they change from project to project and sometime even during a project. However, we can conclude from statements in the interview that certain parts of such a developer network can be more stable because social and business contacts have been established. Interviewee 3 and 7 mention such relations when talking about their development division inside a holding or a group which acts as feeder for the following production pipeline.

The case of a professional also acting privately in real estate business is found in the interviews. Case 4 is an architect that holds privately a real estate portfolio. For such actors it is reasonable to use the synergies in the sense of complementary needs. For example if orders can be carried out by the self owned company. This is helpful from the private point of view and helps to keep a certain workload during periods of low demand for the company.

Buying property can be optional in cases where property assets are at hand (existing portfolio). The typical examples are large industrial firms that have land banks they are developing because they are of no use to them any more. Interviewee 7 reports that the actual business resulted from a downfall of a large industrial company. These portfolios serve as well as security for financing. This example also shows that endowment – especially with an existing portfolio - creates a completely different situation in terms of development opportunities.

It is interesting to note that the real estate business was not of prior interest when the property was bought. An interesting case in this realm are gardening firms that tend to buy property in

the outskirts of cities. With city growth the gardening firms eventually could profit from by selling their properties and moved further away where they could once again follow their business.

Detectability of developer types in our data

We want to check the semantics of the DOCUMEDIA data. To do so we compare the typology on the basis of the DOCUMEDIA data with the typology on the basis of the interview information in table 9.

Table 9 Comparison of typology on the basis of DOCUMEDIA data and interviews

Case number	Interviews						
	1	2	3	4	5	6	7
Typology a priori (DOCUMEDIA)	O1	O1	Om	Smc	Smc	Om	Smc
Typology a posteriori (interviews)	Om	O1	Smc	Smc, Om	Smc	Om	Smc, Om
Typology consistent	No	Yes	No	(Yes)	Yes	Yes	(Yes)

In 2 cases the typology does not correspond. The reasons for the unmatched cases are two-fold. In case 1 a project was realised outside of perimeter covered by the DOCUMEDIA data. Consequently, standardising fails in the dimension *number of projects*. In case 3 the standardising fails on the purpose variable, why is unclear.

In two cases the a posteriori typology is not unique. In case 4 the interviewed person is also engaged privately in the real estate business and thus has a different typology in the private domain. In case 7 the firm actually consists of multiple business units. If all business units are subsumed, the developer type is Om. If the development unit is considered separately, it is of type Smc. Further explanation is given in the previous subsection.

In case 4 the interview was conducted with a development service provider (in this case an architect). To some extent it is possible to extract whether the details on the developers belong to the development service provider or to the owner because the address details contain c/o which indicates that development service provider represents the owner.

5 Conclusions

The decision making of developers is varying according to the variables *purpose* and *professionalism* in respect of their decision criteria, the information sources and executed tasks.

Developers with purpose *sale* see their profit either in providing efficient development services for which costumers are willing to pay or in anticipating the preferences of a finished product they can bring on the market profitable. Therefore, they expect shorter payoff periods than developers with *own use* as purpose. Developers with purpose letting have reduced expectations for profitability which we explain with their preferences for secure investments.

Professional developers have more resources and know-how which allows them to exploit more information than unprofessional developers. The information advantage allows them to realise their margins. We also find that professional developers have a wider activity space. In terms of considered attributes of locations the developers are similar.

The behaviour also varies in terms of tasks carried out within the development process which means that different developer types are active in different sub markets. The business cases they have are correlated with their endowment in terms of portfolio and skills. The endowment with a real estate portfolio is found important because it provides better financing options and land resources as development opportunities.

Categories found in literature are confirmed with the approach taken here. The typology by Waddell (2011) is along the purpose dimension. The fee developer is selling development services while the speculative developer is selling the land and the realised development as a product. The stated development opportunities are very similar to the business cases revealed in this study. It is also mentioned in a footnote that developers can switch between two business cases. Also Coiacetto's typology can be understood along the dimensions endowment (Passive local property owning = with portfolio), purpose ('Means to a mission' = own use, specialised client developers = sell services) and professionalism ('Eye on the street' builder-developers = low professionalism) and in combination (value adding opportunities developer = high professionalism with purpose sale).

Rather than a single entity we have a *development network* active in a development process. Thus the explanation of a development event might be explainable through characteristic of the development network. This could include all sorts of network statistics. The big problem is to generate the data for model estimation. A limited part of the network can be analysed

with the DOCUMEDIA data because some projects contain contact detail of developer, planner and engineer. The network can be seen as the assembling mechanism for the production factors. Inside the development network trading of production factors takes place. Therefore, the development process consists of several sub markets.

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