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Impact of economic crisis on the intention to move house

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Abstract

As a result of the economic crisis in 2008, the price of petrol, goods and agricultural products has rapidly increased and cities all over the world started to suffer from high levels of unemployment and lower business survival rates. Due to the economic downturn, the Dutch housing market also started to weaken in 2008. Moreover, it became more difficult to obtain mortgages and loans from the banks. As a result of these processes, housing prices dropped substantially, the percentage depending on housing type, location and market. To better understand underlying processes, it is of interest to examine the effects of the economic crisis on housing choices, particularly because housing choices impact other long-term choices such as employment and short-term decisions such as where activities will take place in the city. In this paper, we discuss the results of a model of households' intentions to move house, comparing the situation before and during the economic crisis. We investigate whether housing expenditures influenced the probability of the intention to move. For that purpose, we use the Dutch Housing Survey (WoningOnderzoek) from 2006, 2009 and 2012. This data contains information about households' willingness to move within the next two years. We applied mixed binary logit analysis on the intention to move or not. The findings show that socio-demographics, house characteristics and the year of the questionnaire influence the intention to move. Moreover, income, housing expenditure and house ownership, which indicate economic constraints, affect the intention to move during the crisis.

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1. Introduction

As a result of the economic crisis in 2008, the price of petrol, goods and agricultural products has rapidly increased. Cities all over the world started to suffer from high levels of unemployment and lower business survival rates. Many governments found the solution to the crisis by cutting national budgets and rearranging political priorities. These policies had their effects on the housing markets, reflected in decreasing residential mobility, difficulties of obtaining mortgage loans, decreasing house investments, housing demand shifting from buying to renting and from high-price options to low-price options. Housing affects the overall economy in two ways. First, buying a house in itself already implies consumption. In addition, owners spend money on both house-related and non-related goods and services that are derived from the housing needs of households. Second, housing demand keeps the construction works and workers in business¹.

The Netherlands has also been affected by the financial crisis because of its international position and the size of Dutch banking sector. In reaction, the government applied public budget cuts and crediting reforms. Since the crisis, the unemployment rate has been low (around 5,4 %) in the Netherlands compared to other European countries. Moreover, mortgage interest rates (around 5%) are regarded relatively high compared to other EU countries. The high mortgage rates are due to the funding problem of the Dutch banks since 2008². There have been policy initiatives regarding deductions of mortgage rates and mortgage guarantees. However, this has not solved the problems yet. Moreover, the policies generally focus on those households who bought a house before selling their house and ended up with two houses³. Until 2010, housing production remained at a high level due to governmental support. However, after 2010 housing production has been falling rapidly. Today, the economy and the housing market have not recovered yet.

In this paper, we are interested in the effects of the economic crisis on housing choices, particularly because housing choices impact other long-term choices (e.g., employment) and short-term decisions, such as where activities will take place in the city. Thus, we investigate households' intentions to move house, comparing the situation before and during the economic crises.

The intention to move is generally triggered by different variables, such as attributes of the house, life cycle events and location of the house in relation to the work place and activity locations. Intention to move is generally associated with changing needs⁴. Those needs may be more space, better environment, being closer to work or education, etc. Furthermore, changes in the housing market such as booms or decreasing mortgage rates may also trigger the intention to move^{5,6}. The needs that occur from changes in life course, work/education or the situation of dwelling interact with household resources and constraints. Residential moves involve direct and indirect monetary and non-monetary costs, which are generally associated with households' socio-economic situation, manifested in their income, education, household composition, tenure situation, etc. These may not only affect people's intention to move but also impact the realization of the intention to move.

Most literature on residential choice behavior deals with actual moves and not with people's intentions to move with a few exceptions^{7,8,9,10}. The intention to move may be an indicator of dissatisfaction of a household with their current housing. However, intentions are not always turned into realizations since they may not be very strong, households' resources may not be enough or there might be constraints in the housing market. Thus, resources and constraints also affect mobility intentions.

Income, which is a resource and a constraint, is thought to be an important factor in understanding the housing career of households¹¹. Those with a higher income can be expected to be more satisfied with their housing situation and therefore less likely to consider moving. On the other hand, the higher the income, the more houses that would satisfy the needs of people are available in the market. Therefore, they may be more likely intending to move¹². However, Goetgeluk⁴ found that income has no effect on the realization of the intention to move house. An explanation may be that every income group looks for houses they can afford. For instance, higher income groups search for higher-priced houses, which also limits their market search. In addition, monthly expenditures on housing such as rent or mortgage are another important factor in understanding housing careers. If the expenditure for housing increases while income is stable, the intention to move to a house with lower expenditures likely increases.

Households generally wish to move into home ownership due to the society's general expectations. Those intentions are not caused by the need to move. However, some households may wish to move out of homeownership

to being a renter because they lost their job or got divorced. Many studies^{13,14,15,16} show that home-owners are less likely to move than renters because buying a house involves long-term financial and non-financial commitments¹⁷.

This paper discusses the results of a model of households' intentions to move house, comparing the situation before and during the economic crises by using data from 2006, 2009 and 2012. We investigate whether income, housing expenditure and home ownership influence the probability of the intention to move. The next section describes the data and method of analysis. This is followed by a discussion of the results. Finally, we conclude the paper with discussions.

2. Data and method

The data used in this paper were taken from three Housing Surveys (Woning Onderzoek) conducted by Statistics Netherlands in 2006, 2009 and 2012. Housing surveys are based on a large cross-sectional survey in which information is gathered about the housing situation of people living in the Netherlands. This analysis is conducted as a part of a EU project, which aims at understanding the housing choices in Rotterdam. Thus, for this analysis, we used the sample from the Randstad area, which includes 4 big cities (Rotterdam, Utrecht, Amsterdam and Den Haag) of the Netherlands. The sample is representative of the Dutch population living in Randstad area. The dataset includes detailed information on individual and household characteristics. Furthermore, the dataset includes information on the intention of residential move in the next two years after the interview and information on the location and characteristics of the current residence. The sample contains 6208 respondents from 2006, 11497 respondents from 2009 and 6777 respondents from 2012. In sum, the sample includes 24,482 respondents from three different years.

Households' willingness to move house within the next two years is measured by giving the respondents several options to choose. If they choose 'Possibly yes, maybe', 'I would like to but I cannot find anything', 'I have decided' and 'I have already found another house' then we considered them as having the intention to move. If they choose 'I haven't decided' or 'I don't know', then we considered them as not having the intention to move. Table 1 shows the percentages of intention to move for the various years. As independent variables, we added socio-demographics (age, gender, household composition, income, education, living in Rotterdam, working), house characteristics (type, tenure, size, housing expenditure and value of land) and the year of the questionnaire (2006, 2009 and 2012). As the dependent variable is categorized as intention to move and not to move, it is dummy coded. The independent variables are used as categorical variables and they are all effect coded. Moreover, we added the interactions between the year of the questionnaire and income, tenure and housing expenditures (rent or mortgage) variables as independent variables because those interactions may give an indication of the effect of the financial crisis on the intention to move. Table 2 shows the percentages of these variables according to the years.

Table 1. Percentages of intention to move and not to move according to years.

Intention	Year		
	2006	2009	2012
not to move	67.56%	66.09%	63.20%
to move	32.44%	33.91%	36.80%

As the dependent variable is a binary choice, we applied mixed binary logit analysis, using NLogit version 5¹⁸. 500 Halton draws were used to estimate the parameters of the model. The interactions between the year of questionnaire and income, tenure and housing expenditures variables, which are the financial constraints, were entered to the model as random parameters because it is important to understand the degree of heterogeneity in the constraint variables.

Table 2. Percentages of financial variables according to years.

Variables		Year		
		2006	2009	2012
Tenure	owner	31.17%	36.54%	39.00%
	renter	68.83%	63.46%	61.00%
Income (Euro)	17830 or less	27.30%	17.96%	16.64%
	17831-34999	31.67%	34.33%	32.58%
	35000-49999	16.69%	18.06%	18.49%
	50000-74999	13.93%	17.28%	17.62%
	75000 or more	10.41%	12.37%	14.67%
Expenditure (Euro)	0-350	32.25%	21.61%	14.74%
	351-500	31.75%	32.08%	27.05%
	501-700	16.78%	21.32%	25.04%
	701 or more	14.88%	20.91%	27.87%
	unknown	4.33%	4.09%	5.30%

3. Model estimation results

McFadden pseudo R-squared of the model is 0.18. For the analysis, we used the year 2006 as a reference. As the financial crisis started in 2008, this would give us the opportunity to compare the results according to the year before the crisis. The results are shown in Table 3.

Looking at the main effects, the intention to move increases for 2009 and 2012, compared to year 2006. Note that the main effects are relative to the year 2006. It is found that with increasing age, the probability of the intention to move decreases. It may reflect that with increasing age, people are more settled, while young people are more likely to move. The young adult years in particular are years of change since young people move because of education or work and try to settle their life. Gender is found to have no effect on the intention to move. Living in Rotterdam has a negative effect on the intention to move.

Regarding household composition, single households, couples and couples with children are found to have negative effects on the intention to move, while one parent households with children have a positive effect on the intention to move. Moreover, single households are found to have the lowest probability of the intention to move. For singles, it is easier to move as they are not tied to other household members. However, single people in general have lower income than couples as there is only one source of income, which may make it difficult to afford new housing. Moreover, people with children are more unwilling to move than people without children, even over short distances because they are more dependent on the activity schedules and locations of other household members. For instance, parents are generally unwilling to move in order not to change children's schools¹⁹.

Considering education, higher educated people intend to move more than lower educated people. This might be explained by the fact that higher educated people tend to earn more money and have more job opportunities²⁰. Thus, they may have more options for residential and job mobility. Therefore, educated people who are employed can spend more on housing and are more inclined to move⁷.

Looking at the type of dwelling, apartment and house are found to have a negative effect on the intention to move while "other type" of dwellings has a positive effect. "Other type" of housing includes the student houses, elderly houses and shared houses or rooms. Thus, this result might be due to the need of bigger places for the people living in shared accommodation or in a room. In general, little space is an important reason for moving^{6,13,21}.

Regarding the value of the land, it is found that people living in lower valued land are more likely to intend to move out than people living in higher valued land. This might be due to the relative environment and services that are not good in low-value lands. Thus, people intend to move out of their dwellings in such areas.

Table 3. Model estimation results on intention to move in two years (standard deviations are shown in brackets).

Variables	Levels	Coefficient
Constant		-0.31846***
Year	2009	0.13889***
(base: 2006)	2012	0.26045***
Location	Rotterdam	-0.10219***
Gender	Male	0.02191
Age in years	17-24	0.91318***
	25-34	0.88305***
	35-44	0.35944***
	45-54	-0.23166***
	55-64	-0.57625***
Household Composition	Single	-0.20719***
	Couple	-0.06854*
	Couple with child(ren)	-0.08278**
	One parent with child(ren)	0.18818***
Education	Primary Education – Academic	-0.21517***
	Primary Education – Vocational	-0.08224
	Secondary Education – Vocational	-0.11312**
	Secondary Education – Academic	0.11471***
	Higher Education – Academic	0.31961***
Occupation	Working	-0.02267
Type of House	House	-0.96130***
	Apartment	-0.36285***
	Others	0.30728***
Value of Land	74999 or less	0.62928***
	75000-149999	0.07025*
	150000-249999	-0.32830***
	250000 or more	-0.65711***
2009*Income	17830 or less	-0.20794*** (0.51842*)
	17831-34999	0.00253817
	35000-49999	0.03076 (-0.08967)
	50000-74999	.11586** (-0.04747)
2009*Housing Expenditure (Euro)	0-350	.18591*** (-0.29487)
	351-500	0.00238 (-0.37071)
	501-700	-0.08542 (-0.05813)
	701 or more	-.13254** (0.95492***)
2009*Tenure type	House-owner	-.22284*** (-0.0382)

Table 3. Model estimation results on intention to move in two years (continued).

Variables	Levels	Coefficient
2012*Income	17830 or less	0.04825 (-0.0415)
	17831-34999	-0.04191 (.62070**)
	35000-49999	-0.02876 (-0.15995)
	50000-74999	-0.01755 (-0.00181)
2012*Housing Expenditure (Euro)	0-350	-.25878*** (1.45980***)
	351-500	-0.00086 (.91334***)
	501-700	-0.07406 (-0.16457)
	701 or more	0.06149 (-0.07127)
2012*Tenure type	House-owner	-.06236* (.82576***)
Log-likelihood function		-13849.35
Log-likelihood function null model		-16969.63
Rho-square		0.1838742
N (sample size)		24482

Note: ***, **, *: Significance at 1%, 5%, 10% level

Looking at the interaction effects which are compared to 2006, it is found that in 2009 lower income groups are less likely to intend to move, while high income group is more likely to move out. It is plausible that low income groups tend to move less. In addition, due to the decrease in housing prices, the high income group may afford more houses in the market. Moreover, none of the interaction effects between 2012 and income is significant. Individual heterogeneity is found for the low-income groups for 2009 and 2012. This may indicate that factors other than income influence the decisions of these groups.

Considering the interaction effects between dwelling expenditure and years, people who spend between 0 and 350 Euro on their dwelling were more likely to intend to move in 2009, while people who spend more than 700 Euro to their dwelling were less likely to intend to move compared to 2006. Furthermore, it is found that people who spend between 0 and 350 Euro to their dwelling are less likely intending to move in 2012, which is the opposite of 2009. This may indicate that the financial crisis had more effect in 2012 compared to 2009 in the context of dwelling expenditures. Heterogeneity is also observed for different dwelling expenditure categories, which may indicate that other factors affect the intention to move for those categories.

Finally, regarding the interaction between years and home ownership, being a home-owner has a negative effect on the intention to move for both 2009 and 2012, compared to 2006. This negative effect is stronger in 2009. In general, home-owners tend less to move. The results may indicate that the financial crisis has a strong negative effect on home-owners' intention to move. Moreover, individual heterogeneity is captured for the interaction between homeownership and 2012.

4. Conclusions

This paper addresses the relation between financial crisis that started in 2008 and the intention to move. By using the housing surveys (Woning Onderzoek) that were administered in 2006, 2009 and 2012 in the Netherlands, this paper tries to understand the determinants of the intention to move house and also how economic variables such as income, housing expenditure and home ownership affect the intention to move during the crisis.

The results show that socio-demographic variables (age, education, household composition) and house characteristics (type of house and value of land) have plausible and expected effects on the intention to move. The main effects align with the general literature on the intention to move house. However, it should be noted that the data from 2006, which was collected two years after the crisis, is used as a base category. Therefore, the results give us a comparison of the situation during the crisis. Compared to the base year 2006, we see that the intention to move

increases for 2009 and 2012. Due to the crisis, residential mobility in the housing market has declined and housing demand shifted from buying to renting¹. Thus, this result may relate to non-volunteered moves to rented houses and the accumulated needs of moving due to other triggers such as life cycle events, attributes of house, etc. The interactions between the years and financial indicators (income, housing expenditure and home-ownership) also show reasonable results.

These findings may indicate that in 2012 the moving intentions are slightly different than in 2009. The financial crisis was more effective in 2012, compared to 2009, due to budget restrictions and the housing market. In general, the results give insights into households' intention to move house during the crisis and how their financial constraints have affected their behavior.

For this study, additional work is needed to understand the realization of intentions to move house after the financial crisis. A limitation of the study is that the data cannot track whether people moved or not after expressing their intentions. Moreover, because the data sets are not longitudinal, it is not possible to conduct panel analysis to understand how the individual behavior changed over time. Therefore, dedicated data should be collected to address the effects of the financial crisis on residential mobility behavior.

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