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Pitfalls of Excessive Owner Occupied Housing

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Abstract

This paper presents research addressing the problems of the Estonian housing market which is characterized as owner occupied. The aim of the research is to find the possible ways and policies to avoid housing „bubbles" and warning signals of their occurrences. The paper is divided into sections: after a brief introduction it focuses on the problem identification in comparison with recent findings in other countries, followed by the possible policies to apply. Third part is describing the modelling and simulation possibilities.

1. Introduction

It is not very encouraging to study housing market forecasting possibilities and policy for Estonia, bearing in mind M.R. Wickens' recent argument that: "Macroeconomics never has and almost certainly never will, be able to capture the full complexity of human decisions", and go on with the acknowledgement of the nowadays trap of searching for a compromise between unrealistic expectations for financial reporting transparency, how it can help us and how we achieve it, and the human actions that we cannot control for [1, 2].

An overview of the literature reveals that, despite the common knowledge of basic variables and tendencies, investors/house buyers, capital markets and even researchers learn all over again from the same lessons.

This paper illustrates how total home-ownership amplifies the imbalances of the housing market and the whole economy.

The final aim of the research is to point out the warning signals of housing "bubble" occurrence and give recommendations for policy makers. We shall simulate different scenarios of economic and house price developments.

2. Macroeconomic developments

The economic recession of 2008 – 2009 following the financial crisis has affected all the regions of the world to a greater or lesser extent and Estonia was not an exception. Table 1 represents Dynamics of the Estonian economy.

Since 2000, GDP (real prices) increased over 7% each year, reached its peak 11% in 2005 and suffered a rough decline of – 5.1% and – 13.9% in 2008 and 2009 respectively.

Construction decreased from 2007. Amazingly, gross salary continued to rise until 2009 and then had a minor decline. During 2000–2009 the rise in salary was 163%. The distribution of income among the population is extremely uneven and so are the living conditions. The gap between the average price per square meter and average monthly gross wages was small until 2004. In 2006 and 2007 the difference was the biggest – the price of a square meter was almost two average monthly wages. In 2008 the difference diminished again [3].

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Table 1. Dynamics of Estonian Economy [4]

Year	GDP, nominal prices, mill. €	Dynamics, real prices, %	Construction, nominal prices, mill. €	% of GDP	Unemployment, %
2003	8718.9	7.6	1602.6	18.2	10.0
2004	9685.3	7.2	1953.9	20.2	9.7
2005	11181.7	9.4	2472.1	22.1	7.9
2006	13390.8	10.6	3299.2	24.6	5.9
2007	15827.5	6.9	3954.3	25.0	4.7
2008	16106.7	−5.1	3616.6	22.5	5.5
2009	13860.8	−13.9	2379.6	17.2	13.8
2010	14500.9	3.1	1902.2	13.4	16.9

It was due to the aggressive credit policy of commercial banks. Up to now, over 800 dwellings have been repossessed by the mortgage holding commercial banks. This means that these families have lost their homes and, worst of all, still have payment obligations as house-prices have decreased.

These outcomes were amplified by the high rate of owner-occupancy (96%) [5].

During the transition period Estonia took strictly the EU housing policy guidelines about promoting home-ownership, forgetting that real home-ownership should be sustainable and real democracy is free tenure choice [6]. Homeownership has also been an important policy objective in the United States for many years.

In 2003 Barankova *et al*. expressed worries about the number of financing barriers limiting access to home ownership, the most important of them being wealth constraint and non-availability of low down-payment (read quality) loans [7]. Better access to home-ownership was also stressed by J. Gyourko, but in his conclusions he had doubts if low down-payment loans proliferated in the US and the increased overall home ownership rate is a good policy, as the default experience for these loans was not known [8]. The answer came very soon. The Economist published the study of the National Association of Realtors who found that prices are being driven by speculative demand. 23% of all American houses bought in 2004 were for investment, not owner-occupation. 42.5% of all first-time buyers and 25% of all buyers made no down-payment on their home purchase last year, and could get 105% loans to cover buying costs. And increasingly, little or no documentation of a borrower's assets, employment and income is required for a loan [9]. Lawson summarises that the bubble that has resulted in the 2007 credit crunch is significant not only for its size, but also for its nature and concurs that this was an over-lending induced crisis [10]. Though the crisis in United States was the deepest, Barba and Pivetti address warnings to us, as European economies where capabilities to bring high levels of demand to coexist over time with both low wages and the shrinking intervention of the state appear to be even more restricted than for the US economy [11].

In the UK there were worries about the high owner-occupancy in Britain in 2000, yet the comparable figures are: Britain 69%, Germany 40%, France 55%, Ireland and Spain around 80% [12]. The average for euro area is 60% [13].

So Estonians have no real freedom of choice of tenure, as the 4% of the housing stock represent social housing and mostly shadow economy rental sector.

Home-ownership could be viewed as wealth, but only if the property is sustainable. Apart from solvency problems, many owners do realize their rights but not obligations. As a result, housing stock is not properly maintained, especially with the tendency for rising energy costs. Many people are indebted. As in the US, the highest debt-to-income ratios are found at the low and middle-section of the income distribution [11].

Since 2003, the consumer price index (CPI) has grown while index of expenses of housing services and maintenance rose even more dramatically, see Table 2. This affected low income groups mostly. The main reasons behind the rise in the cost of housing are high energy prices and an urgent need for refurbishment to decrease energy consumption.

Though real estate agencies and even banks make analysis on the basis of gross salary, it is not an appropriate indicator of housing demand. Households adjust their consumption according to their income. Table 3 presents calculated dynamics of the gross salary and income distribution [14].

Table 3 reveals that, though income tax is decreasing, the gap between net income and gross salary increases.

Income of the lowest and the highest income groups differed 7 times in 2003, 5.5 times in the peak in 2006 and 5 times in 2009.

Table 2. Dynamics of the consumer price index (CPI) and housing cost index: 1997 = 100 [14]

Year	CPI, %	Housing cost, %
2003	28.8	52.3
2004	35.3	61.3
2005	40.1	72.9
2006	47.3	98.7
2007	61.4	126.7
2008	72.6	165.2
2009	69.7	146.48
2010	79.4	163.4

Table 3. Dynamics of gross salary and income distribution

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011
Monthly gross salary, €	430	466	516	601	725	825	784	792	839
Dynamics from previous year, %		8.4	10.7	16.5	20.6	13.8	−5.0	1.0	5.9
Monthly net income per resident, €	270	302	363	442	528	601	565	547	594
Dynamics from previous year, %		11.9	20.2	21.8	19.5	13.8	−6.0	-3.2	8.6
Lowest income group, €	83	105	134	163	205	235	221	202	218
Dynamics from previous year, %		26.5	27.5	21.6	25.8	14.6	−6.0	-8.6	7.9
Highest income group, €	594	623	737	904	1022	1175	1107	1080	1181
Dynamics from previous year, %		4.9	18.3	22.7	13.1	14.9	5.8	-2.4	9.4

3. Construction and housing market

During the boom in 2003–2007 the construction market grew on account of new buildings. Although residential construction has been active, it has not reached the volume that would cover the normal depreciation of the housing stock. The number of residential completions accounted for only 1.1% of the total housing stock in 2007 and 0.8% in 2008. Along with the construction of new dwellings, purchase-sale transactions boomed in the real estate market. The peak of the boom was in 2006 and the average price of transaction reached its peak in 2007.

During the last three years the number of transactions decreased by 45% and their value by 55% [4]. In the period 1996 to 2006 construction prices increased 2.5 times and nominal housing prices 10 times, this means approximately 700% in real prices. This figure is unprecedented though house prices rose in real terms in most OECD over the 11 years from 1995–2006: Ireland 180%, UK 133%, Spain 105%, Australia 90%, France 99% , Sweden 104% and in Netherlands 93%, USA 69%, Canada 52% [15].

Housing loan interest rates changed in Estonia from 11.1% in 2002 to 3.6% in 2005 and 2006. Still, credit cost was higher than in USA where credit interest rates were 1% at lowest and rose from 2004 to 5.35% [15].

Stabilization started in 2008. It is not surprising that half of the population of Tallinn, the capital of Estonia, and every 19th resident of Estonia has mortgage loans [16, 17].

Partly speculative demand lowered the quality of newly built housing stock. Residential areas were developed around Tallinn with no complete infrastructure and with poor construction and even design quality. According to Kauko, real estate market sustainability is not only about the buildings and built structures, but also about the location and neighbourhood [18].

This brings forth doubts as to whether these housing units will survive until the end of the credit repayment period, at least without capital repair and corresponding investment.

4. Advisory and Policy Trends

Apart from modelling and forecasting, the main policy should be to encourage either a public or private rental sector, to improve mobility, lower transaction costs and give different housing alternatives. It should also moderate housing „ bubbles" and their consequences.

One possible, but not popular way, is to tax property, as Estonia relieves homeowners from land tax. Practice in other countries shows that there are various possibilities [19].

It is commonly agreed that the price of owner occupied housing is not subject to any direct controls and thus, in an elementary sense, price is a function of the level of demand and the level of supply. Demand depends mainly on demographic and financial factors, the key demographic variable being the total number of households. The key financial variables are incomes and the cost and availability of mortgage finance. In the short run the level of demand is also likely to be influenced by expectations about the future levels of house price inflation with demand increasing when there are high expectations of further increase [20–22].

We can overlook the demographic factor, as population declines. The population forecast for Estonia to 2050 foresees a decline of the population. The worst scenario for 2010 was 1 336 256 and, for 2050, 1 204 734 inhabitants [23].

The actual population in 2011 was 1 294 455 inhabitants [14].

We concentrate our research on income and mortgage finance. This decision is supported by the findings in the USA during 1965–2006 that three main factors drive the housing market. Housing demand and housing supply shocks explain roughly one-quarter each of the cyclical volatility of housing investment and housing prices. Monetary factors explain 15–20 per cent of the cyclical volatility [24].

Forecasters of the G7 countries agree that expectations are more stable than the actual series and expectations are sensitive to current conditions [25].

Expectations are out of our reach, though high expectations can drive into indebtedness. Adverse shocks, such as abrupt changes in interest rates or unexpected reduction in income flows could jeopardise household ability to repay the debt, giving rise to a cycle of indebtedness [11].

So the only possible restrictions are house price to income and loan to value ratios. Household borrowing against real-estate collateral is usually restricted by wealth constraints, a loan to value (LTV) and/or income constraints restricting mortgage interest payments from exceeding a certain proportion of the borrower's income [26].

The rule of thumb states that if the current ratio is above the long run average future prices will fall and vice versa.

Although all theoretical and empirical research on housing demand and house prices stresses the importance of income, few studies imply that income is the sole determinant.

However, there is an increasing consensus as to the most appropriate modelling approach to house prices [21].

Our closest neighbour, Finland, has a mature housing market and long time series. For comparison, since the 1990s the price-to-income ratio has climbed up indicating overvalued housing in Finland. In the second quarter of 2006 the average flat price per m^2 equalled approximately 8% of the average annual disposable income [27]. The corresponding figure in Estonia, average for 2006 was 11.8%. These are grounds for serious concern.

Estonia is a small country with an open economy where the banking sector holds a dominant position.

The following variables – real GDP growth, loan portfolio growth, real estate market change and also the level of unemployment were investigated (1997–2009). The choice of the variables was dictated by the significant growth of real estate market and the growth of level of indebtedness.

Changes of real GDP and the growth of the loan portfolio have had the most significant influence on the growth of non-performing loans. .

The level of unemployment determines a part of problem loans. In general this comes from granted mortgage loans [28].

As only income to price might be highly misleading, at the very least, transaction costs and credit markets have to become a fundamental part of the analyses. From this year transaction costs are regulated by fiscal means, as second transaction during the year is subject to income tax.

This possibility is important because speculation distorts prices away from the fundamentals of supply and demand, and gives clear grounds for intervention [29].

Loan to value differs from country to country, but it seems sensible to apply 90%, as proposed by Kauko [18].

5. Modelling Estonian housing market

K. Gibb divides housing models into spatial models focused on long run equilibrium explanations, hedonic price indices, neoclassical spatial models, filtering models and simulation models [30]. In our case, spatial models to find long run equilibrium are problematic, (data series are not sufficient, as Estonia has not gone through full business cycles, data itself is of variable quality). The same assumption is valid for the hedonic price indices. For example, Malpezzi identifies the main application of hedonic analyses in housing and underlines that hedonic models should be used on a firm theoretical basis; their specification should be complete and the design of a pricing model should be fit for its intended purpose [31]. Recent research applies mostly VAR models [32].

The most appropriate way in our case is a simulation model for housing demand. The level of housing demand generated by owner occupancy projections needs to represent effective demand. At the aggregate level, increases in effective demand depend on changes in the economy's long-run growth path and on the price at which housing is offered. An appropriate variable of price for owner occupied housing is the difference between the price paid and the increase of house price over the interval

$$D = P \times \left(1 + \frac{r}{n}\right), \qquad (1)$$

where D – difference between the price paid and the increase of house price, P – is relative buying price, r – annual rate of increase of house price, n – is the interval. Muth suggests that simplification of the implicit rental rate R – is:

$$R = P \times (\rho + d + m - r) \qquad (2)$$

where ρ – is the rate at which owner discounts, d – depreciation rate on housing, m – maintenance cost and r – annual rate of increase of house price [33].

Fig. 1 represents the dynamics of construction prices, consumer prices and derived housing prices. As BPI and CPI follow similar path, the HPI forms considerable bubble from 2003 to 2006 and rough downturn in 2007.

Using the data from Fig. 1, we can derive dynamics of housing construction volumes and prices and also add assumed (by home buyers) capital gain, to point out the gain by real value, the figure in brackets represents price movements following CPI.

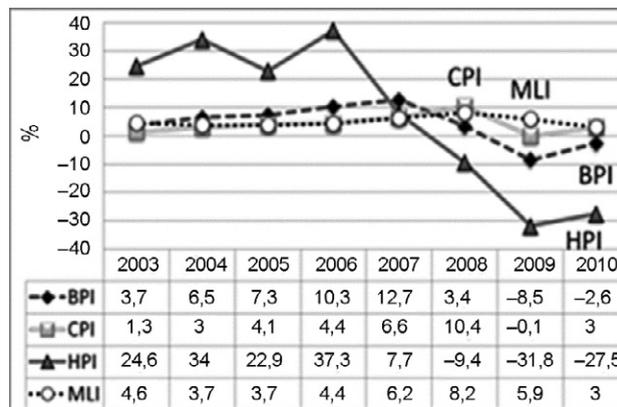|	2003	2004	2005	2006	2007	2008	2009	2010
–◆–BPI	3,7	6,5	7,3	10,3	12,7	3,4	–8,5	–2,6
–⊡–CPI	1,3	3	4,1	4,4	6,6	10,4	–0,1	3
–▲–HPI	24,6	34	22,9	37,3	7,7	–9,4	–31,8	–27,5
··○··MLI	4,6	3,7	3,7	4,4	6,2	8,2	5,9	3

Fig. 1. Dynamics of construction price index (BPI), consumer price index (CPI),
derived housing price index (HPI) and mortgage loan interest (MLI), (%)

Data from Table 4 and Fig. 2 reveal that assumptions for everlasting price growth were far above optimistic, as capital gain turned negative.

Table 4. Dynamics of housing construction volumes and prices

Year	Net area, 1000 m²	% of total construction volume	Average price per m², €	Assumed derived price, €*)
2003	217.0	25.3	582	466 (484)
2004	277.1	22.5	780	536 (516)
2005	325.6	30.4	859	694 (553)
2006	392.0	30.6	1317	884 (610)
2007	566.7	38.1	1419	1398 (688)
2008	458.4	33.2	1285	1511 (711)
2009	305.0	27.7	876	1206 (651)
2010	237.6	35.8		

*) Assumed derived price calculated by HPI – MLI; (in brackets derived price by BPI)

The implicit rental rate for the owner is the asset price per unit of housing service multiplied by the gross rate of return on housing. The latter is the sum of interest, depreciation, and maintenance costs per euro of asset value less the rate of appreciation of house prices, or capital gains.
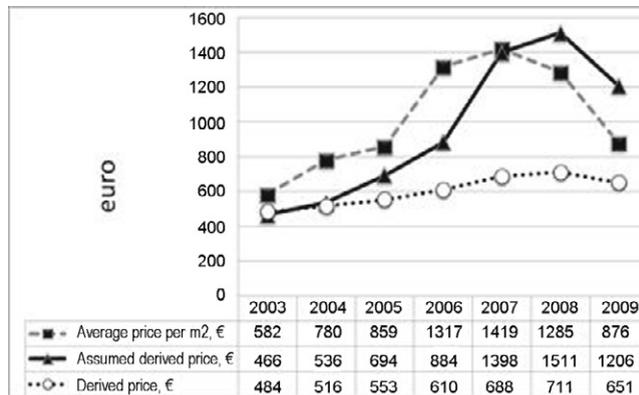

	2003	2004	2005	2006	2007	2008	2009
— ■ — Average price per m2, €	582	780	859	1317	1419	1285	876
—▲— Assumed derived price, €	466	536	694	884	1398	1511	1206
·∙O∙· Derived price, €	484	516	553	610	688	711	651

Fig. 2. Dynamics of housing construction prices

In our case, the maintenance cost does not include the repayment of the loan. As the majority of the housing units are purchased with 20 years credit, actual expenditures for the housing services are much higher and real capital gain smaller.

The implicit rental rate for the home owner with 20 year mortgage credit is:

$$R = P \times (\rho + d + m + c - r) \qquad (3)$$

where c – is the rate of repayment of the credit.

This is valid at least for 20 year analysis. Comparison of these two variables characterizes the rationality behind the home purchase decisions. Dynamics of the real prices and two different implicit rental rates should give the possibility to assess, where the critical point is for utility function subject to the budget constraints even to the different income groups.

Appropriate bases for the formula are different housing consumption, at different price and loan interest for an average family. US determinants of access to owner occupation was derived from a prominent national interest rate-based index measuring housing costs to the median income household purchasing the median home [8].

The stock demand function for housing is then

$$Q = Q(P, g, y) \qquad (4)$$

where P – is relative price, g – gross rate of return on housing and y – the home owners real income.

Two hypotheses need verification:
1. Housing market will balance, when income-to price ratio is less than 3,75,
2. There are serious signals of overheating if rise of housing price is two times the rise of construction cost.

Testing for the shifts caused by the factors of return on housing can display different scenarios of the market mechanism. We cannot exclude the possibility that there is no rationality behind the home purchase decisions and that the main driving force was an expectation of constant house price inflation. In any case this research gives us more knowledge about the real processes in the housing market and in the whole economy; at least it is possible to identify the trends. Research about simulation possibilities of macroeconomic dynamics in Estonia were reassuring [34].

6. Conclusions and proposal

According to the findings in the literature, the main reason for the current recession is the finance sector and liberal lending policy, which led to the housing boom. The housing boom and its consequences affect us at many levels.

First of all, it affects the economy, secondly the construction industry and the final consumers, especially owner-occupants in the low and middle income groups. It is recommended to add control to the financing institutions.

For improved decisions, we need relevant research and to provide the knowledge not only to the authorities but also to the consumers as disclosure of mortgage providers' default rates. Our further task is to work out proper warning signals as price-to-income and loan-to-value ratios.

Acknowledgements

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