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**EXAMINATION OF THE HUNGARIAN HOUSING  
SUBSIDY SYSTEM THROUGH THE CSOK-HOUSING  
SUBSIDY IN THE WESTERN AND CENTRAL REGIONS  
OF THE COUNTRY**

Theses of doctoral (PhD) dissertation

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**Sopron**  
**2022**

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# **1 JUSTIFICATION OF THE CHOICE OF TOPIC, OBJECTIVES AND HYPOTHESES**

The research topic focuses on a topical, socially important area, which is also a priority from a policy perspective.

The topicality of the subject is the “revival” of the housing subsidy system in 2016. Since then, the Hungarian government has launched a highly intensive housing subsidy scheme, the regulatory environment of which is changing dynamically, and the range of available elements is constantly expanding. The importance of this subsidy is reinforced by the high proportion of condominiums in the country.

The paper focuses on the analysis of the CSOK-support (for the period 2016-2020), which is the cornerstone of the new housing policy and the starting point of the Government Decree on the Promotion of Family Housing that entered into force in 2016. Only this subsidy provides a mandatory incentive for home purchase and home improvement, which supports the purchase of both second-hand and newly built properties. Given the narrow housing policy toolbox of the past, the demand for this support is huge.

The study focused on the central and western regions of the country and those who actually benefitted from CSOK-support, due to the higher homogeneity of the regions in terms of development level. The author’s research concentrating on building contractors and real estate sales offices in Sopron confirms this higher homogeneity (Plöchl, 2018).

The author has verified the changes in the conditions of eligibility for subsidies by exploring the theoretical background of housing subsidy schemes, the post-transition period, and current housing policy instruments.

The author has examined the extent to which the support provides tangible and essential help to those who receive it, and how major legislative changes affect the range of applicants. The

paper assesses the family size of the beneficiaries, with a particular focus on the impact of the CSOK-support in encouraging childbearing and its complementarity.

The author identifies purchasing patterns of those who have already applied for the subsidy and those who intend to apply for it in the future; the quality and type of the property purchased; the role of the newly built property in motivating people to have children; the most difficult conditions to qualify for the subsidy; and the factors influencing the home choice.

The author classifies the groups of applicants most in need in terms of family income and house price, both among those receiving the CSOK-support and those buying a property without support to explore whether support beneficiaries started out from a better income situation to buy a property. The author also identifies groups who are not buying their first property with the help of the subsidy.

Based on the empirical research results, the strengths and weaknesses of the CSOK-support and the potential of the scheme for the beneficiaries will be identified.

Based on the above-mentioned objectives, the author formulated the following hypotheses:

**H1a:** The commitment rate to having children in the counties surveyed is lower than the national average and not higher for large families than for families with two children.

**H1b:** The effect of the CSOK-support on additional childbearing is smaller than the effect on the propensity to have children.

**H2:** The propensity to have children decreases as income levels rise.

**H3:** The income level of those using the CSOK and the value of the property purchased with the subsidy are also higher compared to those who have no subsidy but have a mortgage.

**H4:** A newly built home is not a decisive factor in having children.

## **2 CONTENT AND METHODOLOGY OF THE RESEARCH**

The following sources provided numerical data for the data processing: time series of the Hungarian Central Statistical Office, housing statistics micro censuses, housing policy reports and time series published by the Central Bank of Hungary; surveys conducted by the Mária Kopp Institute for Demography and Families; and press releases.

The primary research – covering the period 2016-2020 and seven Hungarian counties (Vas, Zala, Győr-Moson-Sopron, Veszprém, Fejér, Pest, and Komárom-Esztergom) – is structured around three pillars. Based on an anonymous database of credit institutions, an analysis was performed on CSOK-applicants (Pillar 1) and on those who created a home without state support (Pillar 2). To counterbalance the findings and to gain insight into deeper emotional factors, more descriptive information was collected through a questionnaire survey (Pillar 3), which was independent of the banks' customer base.

### **2.1 Assessment methods for applicants for CSOK-support**

The aim of the study is to use the presented methodology to identify the willingness of CSOK beneficiaries to have children, the type of property, and to distinguish between groups of beneficiaries based on the relationship between income and property value ( $H_{1a}$ ,  $H_{2s}$ ).

The pattern consists of 625 Hungarian households receiving subsidies. The relevant information for the analysis in the database is the time of subsidy use, the scale of propensity to have children, and the type and location of the subsidised property. The disposable income of the family, the market value of the property purchased, and the information on the existence of a previous property are only available with respect to those who took out a

loan (391 households). In the dissertation, in all cases the segmentation of families by size (large family, family model with 2 children) includes both existing and anticipated children. Family disposable income of the family, market value of the property purchased, and information on the existence of a previous property are only available for those who took out a loan (391 households). In the dissertation, the segmentation of families by size (large family, family model with two children) includes in all cases both existing and anticipated children.

A cross-tabulation survey and distribution ratios were used to provide a general characterisation of CSOK-beneficiaries in terms of number of children, willingness to have children, type and location of property purchased with the subsidy and its priority. The findings were compared with national results from the literature, allowing the regional results to be interpreted in a broader context and confirming the author's own findings.

To run the cross-tabulation survey, the metric variables were converted to nominal variables. The dependence of two variables was quantified using Pearson's  $\chi^2$  test and the strength of the stochastic relationship between them was quantified using Cramer's V association coefficient (Sajtos - Mitev, 2007).

The author used cluster analysis to group the large number of applicants for the non-refundable CSOK-support based on family income and property value. The number of groups was not known in advance, so hierarchical clustering was used, and the distance metric was the squared Euclidean distance. Although the variables included in the analysis are on the same measurement scale, the ranges differ significantly, which distorts the results of the cluster analysis. To ensure comparability, the ranges were standardised and extreme cases that distorted the modelling were excluded from the pattern, resulting in a cluster analysis that could be performed on 371 applicants.



Since there is no “best” solution for the clustering procedure (Obádovics 2009), the clustering was performed using the centroid, the cluster average, and Ward’s method. Based on the results obtained, the seven-cluster version of the centroid method was found to be the most appropriate. The lower five cluster solutions were discarded as some of the clusters contained too many elements. In this case, three groups accounted for 91% of the total population, and the large number of elements meant that group features were not well defined, and the identification of uniqueness is of paramount importance in the study. In cases of more than seven clusters, there were already single-element groups, so these solutions were also discarded. The author also conducted the non-hierarchical clustering analysis (K-means), where the cluster number determined by hierarchical clustering was entered as input data. This study also resulted in seven relatively homogeneous groups, but this resulted in a set that did not form a separate group, unlike with the centroid method.

## **2.2 Survey methods for people buying property with market funds**

The aim is to examine to what extent the income and property value groups of those who bought a property with a HUF housing loan without state support differ from the groups of those who bought a property with a CSOK-support loan (391 households) ( $H_3$ ). Data from an anonymous database of the same credit institution (1,510 households) with the same spatial and temporal coverage were used for the analysis.

Bivariate cross-tabulation and distribution ratios were also used for this pattern. For standardised variables, the centroid method did not yield satisfactory results here, as the procedure clustered more than 80% of the total population into a single cluster, which could not be significantly changed by further

homogenisation of the pattern and increasing the number of clusters. However, the groups formed by Ward's method, which is less sensitive to outliers, became very similar to the centroid groups of CSOK-beneficiaries. Due to the number of clusters used in the CSOK pattern, the author aimed for seven groups, but the group characteristics justified the eight-cluster solution. The three largest clusters comprise 77% of the elements in the pattern.

### **2.3 Methods for processing questionnaire responses**

The questionnaire survey ( $H_{1a-b}$ ,  $H_2$ ,  $H_4$ ,) was conducted among people interested in or using CSOK-supports and the seven previously mentioned Hungarian counties. The survey period was between 01.06.2021 - 19.08.2021. The author employed internet and paper-based questionnaires that were filled in manually.

The non-probability sampling technique was used, as in this case the selection of items is not random. The sampling procedures used are judgmental and snowball sampling to obtain the most homogeneous sample possible. The open and closed questions focus on four parts: receipt of support; use of support; having children and property accumulation. The scale questions are designed to measure emotions and attitudes, so in the case of ordinal Likert scales, the response options are not symmetrical to reflect the respondent's negative or positive attitude.

With the questions, the author seeks answers to the extent of additional childbearing, the size and purpose of investment property acquisition, the factors influencing housing and, finally, the importance and availability of direct and indirect support.

The responses obtained were analysed using the statistical program SPSS v.19. bivariate cross-tabulation and the Excel program PIVOT – a rounding sum calculator.

### 3 RESULTS AND CONCLUSIONS OF THE RESEARCH

The research is based on a comprehensive study of national and international literature supplemented by secondary data processing and the author's own three-pillar primary data collection and analysis. The results and conclusions of the dissertation were summarized according to the hypotheses, which form the theses of the research:

1. In the counties surveyed, the propensity to have a child (database of credit institutions (N=625) 23%, questionnaire responses (N=259) 28%) among those who received the CSOK support is slightly lower than the national rate of 33%. Seventy-seven of applicants claim the subsidy after the birth of their child. Sixty-eights per cent of those who claim in advance intend to have two children, while 32% intend to have three children, taking into account the number of children they have and the number of children they will have in the future. In terms of the number of children anticipated, 53% of applicants are planning to have one child, 45% are planning to have two more and 2% are planning to have three. Eighty per cent of those with two children under the age of 40 – of childbearing age – and 39% of those with large families claim the support for a child anticipated (H<sub>1a</sub>).

A higher proportion of families who only want to claim the support in the future think they will do so after their unborn child.

Those on lower incomes have a higher propensity to have children in advance. Three quarters of those who anticipate having a child fall into the top three income bands (H<sub>2</sub>).

2. People who use the advance child benefit can be expected to contribute to population growth if they have committed to having a child they had not previously planned to have as a result of the benefit and have not brought forward their planned

childbearing. Additive childbearing is at a minimum of 3% (N=259). Almost 50% of those who have an additional child are having their third or fourth child because of the incentive effect of the support. A slightly higher proportion (10% of respondents) than those who actually have a child as a result of the subsidy think that it is worth having a child over and above their initial plans for a higher subsidy amount, but they themselves do not have a child over and above their plans. The above shows that those with smaller family sizes were equally motivated to have children and that this was restricted to families who currently have two children and become large families by adding one more child. Furthermore, a child born in addition to the planned number of children contributes to population growth, regardless of the number of children born into the family ( $H_{1b}$ ). As the effect of the subsidy would not be to increase the contribution of large families (including planned and existing children) to population growth, it could reduce the subsidy gap between the families of 2-3 children, especially for newly built properties, and increase the subsidy for single parents.

3. The author compared the income and property value data of those who had already received the CSOK-support (N=391) with the same data for those who had not received support (N=1510) but had to take out a mortgage to buy a home. Thirty-nine per cent of those who bought a property with a subsidy (30% of those without subsidies) bought a property worth between HUF 20 and 30 million, and 34% of those without subsidies (2% of those with subsidies) bought a property worth less than HUF 20 million. The price of the homes purchased reveals that the subsidy helps to create a home of greater value. It has given people the chance to improve their living conditions with a property of up to HUF 20 million, as well as the chance to buy a property for over HUF 40 million. For the two groups with almost identical income bands,

the property value categories shifted up one level for each income quintile. Therefore, at the same income level, the impact of the subsidy is that families buy a property that is an average market value 10 million HUF higher. More than half of those buying with subsidies are looking for a newly built property, while those buying a home without subsidies are more likely to buy second-hand houses, both in rural and urban areas. Both groups are looking for houses in higher proportions. Despite the better purchasing position, CSOK-beneficiaries still move to the countryside in larger numbers. Between the two groups, the lack of subsidy does not result in a difference in the size of the properties purchased but allows buyers without subsidy to acquire lower quality properties at a lower price. For those on a tighter budget, there are also better quality but cheaper ‘village blocks’ of newly built houses with fewer flats, which are not preferred by those without subsidies because they can get a village house for the price of a newly built flat. Thus, the positive bias of the subsidy is reflected in the quality and type of property purchased.

A higher proportion of those who will only receive the subsidy in the future consider that they will only be able to buy a second-hand property with the subsidy, given the current situation and the increasing market prices induced by demand ( $H_3$ ).

4. For each family model ( $N=625$ ), the distribution between second-hand (15% - 48% - 37%) and newly built (13% - 35% - 52%) properties is almost identical. Half of the aid amounts paid out are concentrated in 18% of the eligible persons (14% without the people who are committing to have children), since they are large families and therefore receive a non-refundable state subsidy of HUF 10 million for the purchase of a newly built property. Families with two children purchasing a newly built property, who account for 23% of all applicants, receive less than 20% of the

payments, despite having made a larger number of transactions to purchase a newly built property.

5. Beneficiaries were classified into seven clusters (N=371) based on their income status and the value of the property purchased with the subsidy. As a result, two clusters were identified (*Small families in need buying a second-hand home and large families buying a second-hand home in the city*), who are the most socially needy due to their income and the modest property purchased. They would not have been able to own their own home without the support, but the support has also been a great help to *Villagers buying a newly built home*, who can now own a property of higher value for their income level, thus increasing the quality of housing for their family. The groups of beneficiaries and their characteristics were also identified and can be compared with those of non-beneficiaries. It can thus be concluded that the more modest groups of CSOK-beneficiaries and the property purchase patterns of investment or luxury property buyers are not behaviours that are the result of the CSOK-support, as these patterns are also found among non-subsidised groups.

6. Seventy-eight per cent of applicants (N=371) self-declared that they did not own a residential property when they claimed the benefit, while 14% did, but sold it in order to improve their family's housing conditions. Only 8% of applicants in the top two income categories (77% large families) claimed to have kept their previous home and bought another one using the subsidy. If we include the beneficiaries identified as investment groups in the clustering, we get a share of 15%. This figure is already in line with the results (19%) obtained in the questionnaire survey. The property purchased with the subsidy is used as a residence, while the previous property is used for investment purposes or for the child's future residence. As barely a quarter of these property transactions

are for newly built houses and the applicant families are typically not large families, they benefit only moderately from the subsidy. In the case of the cluster of *People buying investment homes in addition to their dwellings*, and the group of *Investment Home Buyers* and *Small Families in a newly built luxury urban home* identified by the cluster analysis of beneficiaries, the author does not consider it necessary to award the subsidy, as they are mostly using the subsidy for investment purposes and not for first home purchases.

A maximum income limit – included in the conditions of eligibility for support – would help to minimise the number of these beneficiary groups, which would be supported by 17% of respondents, who are not only from lower income groups. The fact that the top income band for CSOK-beneficiaries is family income above HUF 761,000 may provide a clue to the definition of this income limit. The aforementioned three groups of applicants have incomes above this threshold.

7. Subsidised loans are an important complement to direct non-refundable state support, as shown by the fact that 63% of CSOK-applicants (N=625) have also supplemented their home purchase with a loan. The changes in 2019, with subsidised loans now available for those with two children and for second-hand property purchases, have increased the number of applications, with families with two children accounting for nearly three-quarters of all applicants this year, up from 50% in the past. Beneficiaries (N=259) themselves consider that interest rate subsidies are a major support (92% consider it as a significant help), with those who have already taken out a loan being more positive. A positive change would be to make the subsidised loan available to single parents.

8. However, the loan requires a personal contribution, which has proved to be the most difficult condition to meet for both applicants and those considering applying for a loan. This was a problem for 42% of respondents (N=259). Direct subsidies can help those struggling to raise the contribution, but at present they are only available to those buying a newly built, large family house. It would therefore also be useful to increase the number of subsidies for smaller families and reduce the gap between them. The current amounts available cover 13% of the average value of second-hand and newly built properties for a family with two children. For large families, this is 19% for second-hand properties and 49% for newly built properties.

9. According (N=259) to 83% of respondents, price is the main factor influencing the purchase of a property and a possible move. This is followed by the availability of jobs, human infrastructure (kindergarten, nursery, school, workplace), proximity to nature and tranquillity. Consequently, applicants are not deterred from living in a rural area if these factors are present in the locality, which increasingly enhances the importance of agglomeration villages. However, the preferred small areas (7% of respondents live in such a settlement) lack these conditions, so 66% of respondents would not want to live in such a settlement, and a proportion of those who do (18%) would move if they could. Consequently, if the government could reduce the infrastructural backwardness of these settlements, the demand for housing in these areas could also be boosted. Otherwise, the author argues that higher subsidies will not ensure the government meets its objectives of halting the depopulation of settlements.

10. The government will reward large families buying newly built properties with a special subsidy under the CSOK-programme, with the aim of triggering more favourable



demographic trends. Eighty-nine per cent of people (N=259) (regardless of family size) consider having their own home as an important condition (70% consider it very important) for starting a family, but do not think that this necessarily requires a newly built home. Among large families, the existence of a new home is of minor but greater importance compared to other family models (but is not a decisive factor overall). Only 2% of respondents consider having a newly built property to be essential and a further 18% consider it important. The most necessary condition, however, is a secure relationship, followed by a decent income to support the family, a secure job, and a home of one's own. Only after these do child benefits, family taxation, and housing benefit elements come into play. The existence of a newly built property is ranked as the top condition for starting a family (H4).

### 3.1 New and novel research findings

In my doctoral thesis, I examined the home-buying habits of certain groups of CSOK-support applicants and unsubsidised home buyers in the western and central regions of the country. The research can be considered new and novel, since the literature on the topic is very scarce. On the other hand, the research also identified several new insights and findings, including the following:

#### *New and novel findings related to hypotheses:*

➤ For the western and central regions of the country, the intention to have children of CSOK-beneficiaries has been determined.

1. The propensity to have children is 23%<sub>(N=625)</sub> – 28%<sub>(N=259)</sub>, lower than the national rate of 33%. Applicant who form large families with the anticipated child have a lower propensity to have children (17%) than those who will have two children (36%). The age of those receiving support does not change this factor (*Thesis 1a*).

2. As the income level rises, the propensity to have children decreases, with a higher propensity to have children in the first three income bands, 23-24%<sub>(N=371)</sub> (*Thesis 2*).

➤ As a result of questionnaire research, the author determined the additive effect of the subsidy on childbearing and the role of the newly built property in family formation.

3. Three per cent of CSOK-beneficiaries<sub>(N=259)</sub> have more children than previously planned because of the subsidy (*Thesis 1b*).

4. Newly built property was not a decisive factor for having children. More than 48% of applicants<sub>(N=259)</sub> considered it not at all important and 23% considering it rather unimportant (*Thesis 4*).

➤ The research covers not only those applying for a CSOK-support, but also those creating a home without a subsidy.

5. The income level of CSOK-beneficiaries<sub>(N=391)</sub> does not exceed the family income of those who create a home without support<sub>(N=1510)</sub>, while the value of the property purchased with CSOK-support is - on average – HUF 10 million higher (*Thesis 3*).

*Other new and novel findings from the studies:*

6. The author was the first to identify the most needy claimant group (“Small families in need buying a second-hand home”) and the groups of property hoarders (“Investment home buyers”, “People buying investment homes in addition to their dwellings”, “Upper middle class large families”). The property decision rate was set at 16%<sub>(N=625)</sub>.

7. When examining those who intend to apply for CSOK-support in the future, it is unique to find that they have a higher propensity to have children than those who have already received support. Among those intending to take up the subsidy, career and family support for childrearing are more important than having a child.

8. Based on the results of empirical research, the author has identified the strengths and weaknesses of the direct and indirect CSOK-support. The support is considered to be more than 90% useful. Support for the purchase of second-hand housing is also a priority. The most difficult condition to meet when applying for the subsidy was to find the own resources, ahead of the need to be eligible for social security. Responses from data subjects showed that there was a need to increase the amount of support for one-child families and to make subsidised loans available. At the same time, they do not rule out the abolition of the property accumulation and the setting of a maximum income threshold above which the subsidy would no longer be available.

## 4 PROPOSALS FOR NEW RESEARCH DIRECTIONS

The analysis of individual housing subsidies, such as the CSOK-support, in Hungary is made very difficult by the lack of data available at the depth detailed in the dissertation. Therefore, it is advisable to carry out the analysis for the eastern regions of the country as well to identify the similarities and differences between eastern and western Hungary.

In her research, the author investigated the impact of the CSOK-support element on having children. The Hungarian housing subsidy scheme has an extensive set of elements and one of its central objectives is to encourage childbearing. Therefore, the assessment of the additive effect can be carried out for other types of subsidies by extending the analysis to the completion of the pre-contracted childbearing period, with the aim of detecting the positive impact of the subsidy on the population.

The research shows that there is little willingness to move to a preferred sub-region, and that job opportunities and infrastructure are important factors in the choice of residence. It is therefore possible to investigate whether and how the subsidy has triggered such a development in the assisted areas and increased the population.

Given the current uncertain economic and political environment, a long-term back-testing of the NPL ratios (non-performing loans ratio) of these subsidised loans is advisable, even though they have above-average repayment discipline.

The dissertation deals in detail with the specific housing policy characteristics of our country. However, no such in-depth research is available for EU countries, so it would be useful to map the evolution of their housing policy systems over time for comparability.

## 5 INDEX

1. OBÁDOVICS Csilla (2009): Klaszteranalízis. Eszterházy Károly Főiskola, Eger.
2. PLÖCHL Kata (2018): The Family Housing Support Program (CSOK) in Sopron. E-CONOM 7 (1) pp.51-65.
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## 6 PUBLICATIONS OF THE AUTHOR RELATED TO HER THESIS TOPIC

### **Proofread journal articles**

PLÖCHL Kata – OBÁDOVICS Csilla (2021): Examination of Applicants for Home Purchase Subsidy for Families in Terms of Prior Commitment to Having Children and Extent of Property Acquisition, Based on the Data of a Credit Institution. *Financial and economic Review*, 20(3) pp.80-109., DOI: <http://doi.org/10.33893/FER.20.3.80109>

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