Budapesti Corvinus Egyetem
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Doctoral School of Sociology

Summary of Thesis

Nóra Teller

Trapped in One's Own Housing

The Limitations of Housing Choices in Segregated Neighborhoods

Supervisor:

József Hegedüs, PhD

Budapest, 2020

Department of Sociology and Social Policy

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1 Introduction and research rationale

Since the early twentieth century, housing segregation, both at the community level and in broader policy contexts has been a topical research issue worldwide. The role of discrimination and regional inequalities in housing markets played out as key factors in such analyses. In the Hungarian context, in the recent three decades, inequality has increased among the growing stratum of poor and the middle-class, which means that the gap to be bridged by households seeking to access quality services and the job market has widened, while the number of those in poverty started to decline; and the tools available for bridging these gaps are increasingly diverging among various social groups. Moreover, there have been great shifts in policy design both in terms of social inclusion and the urban planning and regional development sector. Although the living conditions of marginalized Roma in segregated neighborhoods have slightly improved, in segregated areas generations are trapped in poverty and destitution.

This thesis was designed to describe an exploration of the shifts in spatial inequalities and housing segregation from the 1990s onwards, and to analyze the constraints to escaping segregated Roma neighborhoods at the household level, and triggers for moving to the latter. I intended to increase understanding of how the housing system (and more specifically, housing policy interventions) impact housing pathways, and the bottlenecks that local- and national-level policy measures confront in relation to promoting social integration. I wished to contribute to the discussion about the combination of effects and transmission mechanisms which have remained largely unexplored, especially in the Hungarian research context.

In Hungary, like elsewhere, the multifaceted character of segregated neighborhoods is – among other aspects – linked to historical development (see, for example, Havas, 2008 and Ladányi and Virág, 2009). Phases of Hungarian urbanization and regional development, the programs of Roma resettling, and the economic processes that go hand in hand with migration have equally affected the emergence of the present situation (Dupcsik, 2009). Newer processes and policy interventions have also contributed to the emergence of declining and worse off neighborhoods. A vast range of analyses of urban interventions have generated a set of lessons about the complexity

of the institutional preconditions for sustainable interventions (EC/WB, 2014; Jelinek and Virág, 2019).

The thesis is intended to elaborate a framework for increasing understanding of the links between segregation and "sub-optimal" household-level housing decisions; i.e., the decisions which push an increasing number of people to the margins, among them many Roma. I wished to deliver a more nuanced and systemic understanding that is specifically focused on the constrained housing mobility and housing strategies of excluded Roma households. Such research has to contextualize the micro-level adjustment patterns within the emergence of spatial inequality and segregation processes, and development and housing policies. Therefore, I also used some new quantitative data analysis to underpin the robustness of findings obtained from qualitative data for the after-transition years, with a focus on the more recent past.

The combination and interlinkage of individual decisions and contextual-level conditions (including policies) related to Roma housing segregation processes, especially the intersectional nature of its components such as discrimination, regional inequalities, and sub-optimal personal or household decisions / adjustment strategies, are at the heart of the research presented in the thesis. I claim that household decisions/adjustment strategies, (housing) market patterns, and (discriminatory) institutional policies by themselves may lead to spatial segregation, but also, in given combinations, that they may change the speed of spatial segregation. Of course, the three phenomena are interlinked in that institutional policies constrain individual decisions, and (informed) individual housing decisions are always linked to short and long-term household strategies, which are also framed by market mechanisms (Skifter Andersen, 2003).

2 Methods

The conceptual framework used in the thesis is based on analytical sociology (Hedström, 2005). I discuss mechanisms that connect the individual level and collective outcomes in a dynamic manner based on a review of the literature about segregation, housing adjustment, and (selective) mobility. The choice is underpinned

by the fact that housing decisions and pathways are necessarily context-bound, and are typical examples of actions characterized by an interplay of micro- and macro (or in other words, contextual) factors (Wong, 2002), notwithstanding the role of individual consumption choices, interactions with institutions, social practices and housing policy, and the constrained rationality of households (Clapham, 2002). Moreover, as Schelling (1969) showed, the process that leads to segregation can be decomposed into individual decisions, and these constrained individual decisions lead to collective results that are "independent" of individual intentions in the sense that their scale and speed are unintentional.

The methodological grounding discusses some further aspects. My analysis presumes that inter-ethnic relations are components of segregation mechanisms and should be better understood. Further, households' adjustment patterns (attitudes and actions) should be understood within a research target population that has self-identified as Roma. This implies that, for the sake of the research, the segregation patterns of hetero-identified localities (Roma settlements) should be investigated in combination with individual, self-identified Roma households' housing adjustment patterns.

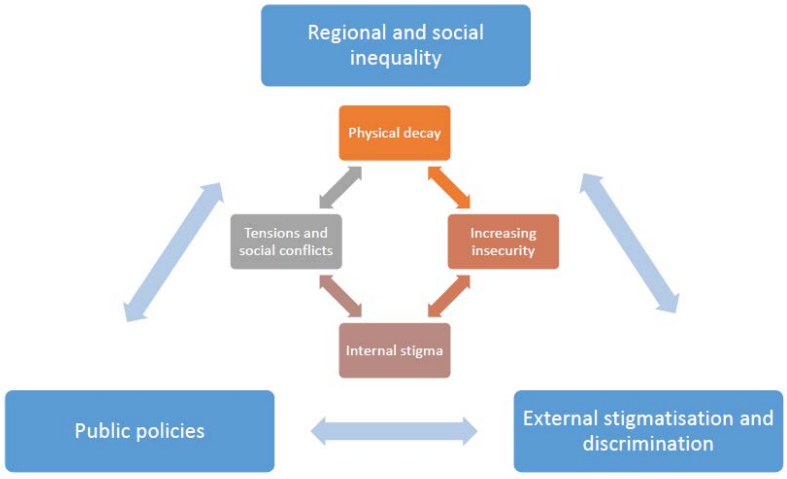
For the investigation, I used document analysis (literature review), quantitative data collected at various points in time (all with constrained housing mobility data), used for a logit model (see annex), and qualitative data (collected in field-based projects during the course of approximately the last 15 years, see annex for the list). Thus, I undertake data and methodological triangulation so as to ensure a comprehensive discussion of the research themes and to bridge the caveats of the data used (Messing, 2014). Moreover, the policy perspective is linked with an illustrative, agent-based Netlogo micro-model (see annex for the code-book), and is calibrated for select combinations of segregation-, discrimination-, and social inequalities that are characteristic of the lowest segment of the housing market in Hungary.

To reflect the complexity of the processes and mechanisms, the line of argumentation is arranged into three large thematic blocks: the contextual perspective, household-level housing adaptation and mobility, and the local policy response level.

3 First perspective: Reconceptualizing the links between spatial segregation and social inequality

Starting from a review of theoretical works on segregation, I developed an extended segregation model. This conceptual framework includes structural-physical problems, problems with the internal design of housing, the competition-related issues of areas, urban design and spatial problems (poor location, pollution), internal social problems (crime, anti-social behavior), financial problems (arrears, vacancies), management and organizational problems (inadequate maintenance and insufficient resources), and legislative problems, and the contextual impacts of wider socio-economic problems. As a starting point I reverted to using Skifter Andersen's urban decline model (2003), but I refined it further to make sure that governance- and policy-structure-related mechanisms are awarded a relevant position in the process of decline. Moreover, I found it important to emphasize that the processes within and outside such neighborhoods are closely linked; they combine, interact, and fortify each other, and, most notably, they operate in their complexity.

Visual 1. Contextual-level analytical model: components in interaction



Source: Skifter Andersen (2003), with modifications

The extended analytical model contains the following conditions and processes at the contextual level:

A – External features:

1 - regional and social inequality (e.g. access to lower-positioned segments of the labor market and other services, limited transportation connections);
2 - public (housing) policies (e.g. those that put the neighborhood at a systemic disadvantage, and rolling out of state from these neighborhoods);
3 - external stigmatization and discrimination (in terms of the labor market, education, insurance services and bank credit, etc. The neighborhood itself is often the locus of the production of stigma, which is reinforced by various institutions.).

B – Internal features:

1 - physical decay (due to under-investment in housing, roads and other facilities, and more frequent damage to equipment in the public space);
2 - tensions and social conflict (use of public space, institutions, etc. may be dominated or controlled by the informal power of a single group within a neighborhood, causing vulnerabilities, exploitation, and dependence);
3 - increasing insecurity (neighborhoods may also attract illegal activities, due to the lower presence of state structures);
4 - internal stigmatization and reduced self-esteem among residents (repeated experiences of discrimination reduce aspirations of local inhabitants and hence social and cultural capital).

Internal and external processes are interlinked, and reinforcing. For example, public policies may neglect places with lower social capital because their representation of interests is weaker. Therefore, fewer public investments are completed in these neighborhoods, leading to the speeding up of physical decay. Poorer environmental and housing conditions attract more marginalized groups, who may in part rely on informal and illegal activities to sustain their living, hence security declines. With decreasing security, institutions may “red-line” neighborhoods (i.e. they fear they will get no return on loans or services). The withdrawal of institutions creates room for alternative power structures and hierarchies, leading to internal tension and social conflict. Thus, this downward movement has numerous forms of causation which

intersect and combine in a synchronous or consecutive manner, strengthening and reinforcing each other.

I showed that relative income poverty affects proportionately four times as many Roma households. The trend indicates a slowly closing gap, which is linked to the fact that the income level of the general population (and hence, non-Roma) has remained practically unchanged, whereas Roma households' incomes have improved, lifting approximately one-third of affected households out of poverty (Bernát, 2019). However, the severe material deprivation gap has not improved. Despite some shift in this sub-component of social exclusion, the general gap between Roma and non-Roma has not changed considerably, and there are still proportionately three times more families affected by poverty and social exclusion among the Roma compared to non-Roma (Bernát, 2019). The link with labor market positions is strong.

Social inequalities translate into housing inequalities, too. Despite considerable improvements in housing quality in general, the housing situation of the Roma is still significantly worse than that of the average population. In Hungary, 1384 segregated neighborhoods (some inhabited in the majority by Roma) exist, spread over 709 settlements, of which 482 are villages that account for approximately 2.8% of the total population. Housing price differences and their evolution also have a detrimental effect on housing mobility potential in and away from regions with pockets of poverty and large numbers of segregated neighborhoods. Price differences are of significant importance when the transaction costs of moves within the ownership sector are concerned (whereas differences in rental prices may be less depending on property quality and security).

I also showed that regional inequalities are reinforced by the local governance structure, too (Teller, 2004, Földi, 2006). Local governments are key players (even since recentralization was launched in 2013) because most of the service delivery and policies of spatial relevance to areas with a high concentration of vulnerable groups are driven by the former. Whilst some deal with the constraints posed by intergovernmental governance settings (for example, Hegedüs and Teller, 2006), others focus on how public players, including the (local) social sector, reproduces vulnerability because of its own institutional interests (for example, Szalai, 2004). Nevertheless, local governments have been incentivized to address social exclusion

within their administrative areas using a territorial approach, whilst making use of all planning and design competencies they have, and relying on their service delivery capacities. Beyond more promising projects, some initiatives have demonstrated that when service delivery is duplicated in segregated neighborhoods when project financing ends, local governments face difficulties maintaining the social-inclusion- and social-work-related activities in the given neighborhoods, thus "diseconomic" solutions may turn out to be problematic in the long term, hence the gap between neighborhoods and towns prevails. In conclusion, the counter-incentive to serve marginalized groups under the current governance structure has remained strong. Thus, poor Roma neighborhoods are still more of an "outcome of the involuntary spatial segregation of a group that stands in a subordinate political and social relationship to its surrounding society" (Marcuse, 1997:228), as opposed to neighborhoods where ethnic concentration becomes established because of the voluntary spatial concentration of a group which supports the welfare of its members (Clark, 1965; Peach, 1996; Vincze, 2013). Public authorities, within their powers, often contribute to increasing spatial segregation – for example, via land policies, housing policies, and investment policies in general (UN, 2014).

Evidence shows that the detrimental effect of social inequalities and governance disincentives on Roma neighborhoods is further impacted by external stigmatization and discrimination in social, political, legal, and institutional fields in Hungary (see for example Kertesi, 2005; Ladányi, 2001; Dupcsik, 2009, Feischmidt and Szombati, 2014).

External processes and internal processes are interlinked and complementary, meaning that they reinforce each other. These processes may be at different stages of development in different neighborhoods, with factors at variable levels of dominance.

4 Second perspective: Housing choice and adjustment

The second perspective reflects on housing mobility theories and discusses Hungarian data with a special focus on survey results related to the constrained housing pathways of Roma to show the major differences between housing pathways into and out of

segregated neighborhoods, versus up and down the housing ladder for the general population.

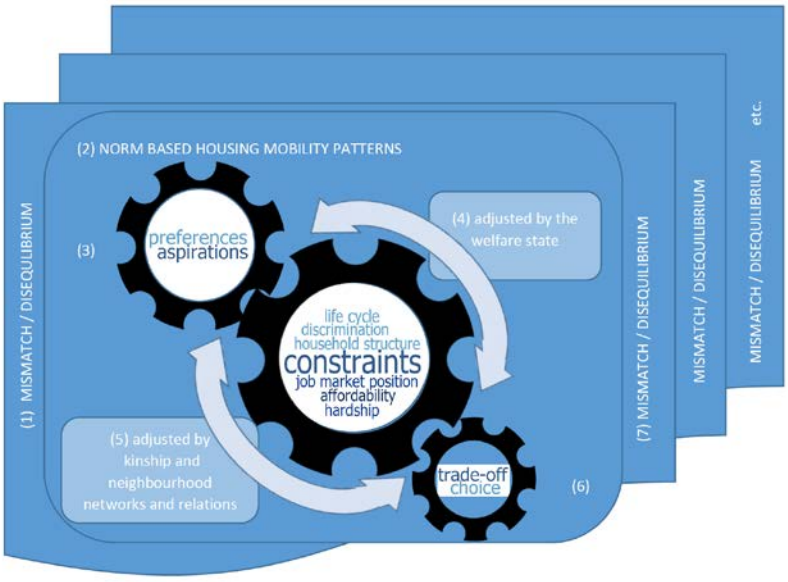
I showed that the pathways available in constrained housing market segments are distinguishable from those in mainstream housing careers. It is important to understand that this difference is linked to adjustment patterns that diverge from those of the general population. In order to make this distinction, we must differentiate two layers of household adjustment patterns: individual life-cycle-related housing decisions, and adjustment-to-contextual-level conditions. Moreover, individual housing decisions and household strategies are impacted by social networks and kinship, by local housing allocation policies, the labor market, accessibility, welfare, and other service delivery design, discrimination, and general housing-policy-related factors.

Evidence proves that urban change and housing mobility are related phenomena, thus the roots of the conceptualization of housing mobility originate in the same theoretical school as urban change, with consecutive theories refining potential explanatory frameworks. For example, housing mobility "pathways," as formulated by David Clapham (2002), complemented with the vacancy chain framework, can increase understanding of the meaning of a home as a financial strategy, investment strategy, or a last resort in a household's life course within a more contextualized framework that takes into account changes in the housing market, or, in a given case, the position of a whole neighborhood.

In order to improve understanding of the housing mobility patterns of households who may be constrained in their decisions in terms of space and housing market segments (see the "mobility channel" paradigm), I elaborate a life-course-based analytical model. I link moves in and out of the lowest market segment neighborhoods to spatial manifestations of upward and downward housing mobility from the contextual perspective. The housing choice that is made (irrespective of whether revealed or planned) is considered an adjustment on an "ad hoc" or a "strategic" level from a micro-perspective. Beyond tackling disequilibria or mismatches in consumption, the trade-offs of low housing consumption vs. other life-course traits are also accommodated in the analytical model. Moving into segregated neighborhoods is perceived as a broadly non-sanctioned coping strategy, as it is carried out by many households inside kinships and social networks.

In the case of households living in segregated neighborhoods, a number of factors within the general micro-level adjustment model are of core interest. With the help of the analytical model, two core issues can be analyzed: (a) the coping patterns of families regarding their constraints; that is, to what extent they can make real choices between neighborhood networks vs. mainstream welfare arrangements in order to mitigate their constraints within a segregated neighborhood; and, (b) the aspirations involved in changing housing, and the cost of the trade-offs at which these can be achieved.

Visual 2. A life-course-based analytical model of housing adaptation at the micro-level



Source: Author's construction.

According to the framework, at the household-level, (1) mismatches may emerge at any point of the life course due to a change of job, change in household size or structure, cuts in the household budget, etc. (2) In alignment with the norm-based housing mobility patterns of the given social group it feels attached to (or wants to feel attached to), the household formulates aspirations and preferences for adjustment – to move, upgrade, downgrade etc. (3) However, the aspirations of the household may be challenged by a set of constraints, like a lack of savings, health conditions, care-related responsibilities, or discrimination. These constrictions may be modified by two resources: (4) the welfare state, which offers, for example, housing subsidies, job

search allowances, or income replacement; and (5) kinship and neighborhood resources, which make life more affordable due to reciprocal help relations, thereby enhancing the resilience of household budgets and making jobs accessible through extended family or social networks. On the other hand, these two resources may also aggravate any constraints, as the two double arrows in Visual 2 portray. It is important to note that reciprocal relationships based on favors are normally created and produced within local communities or neighborhoods, thus their production cannot be easily displaced or moved to other communities. This may be one of the factors why moving away from kinship which is supportive and functions as a (second) safety net (see the "social efficacy" concept) may intensify constraints. (6) While checking and evaluating all constraints against potentially mitigating factors, the household adjusts its preferences and opts for trade-offs before making an actual choice. A broad range of choices and combinations of choices may be available, such as leaving an area, upgrading in situ, moving, moving and upgrading, upgrading later, etc. and also a part of the household leaving temporarily (for example, going abroad and sending back remittances to their family for the purpose of upgrading). If there is a mismatch, the process restarts, and (7) another choice will be made

Based on quantitative data I compared the mobility pattern of marginalized families, Roma families, and the general population. The emerging patterns among Roma households – which seem to be significantly different from the general trend – cannot be explained by their social deprived status only.

Approximately 40% of all age cohorts of Roma that were surveyed have never lived in a segregated neighborhood. The youngest and the oldest (that is, people just about to establish a housing career, and those towards the end of their housing pathway) are more likely to live in Roma settlements compared to other age groups. The same is true of past experience of living in a segregated neighborhood: a third (34%) of households with a middle-aged head of the family have lived in segregated neighborhoods; and this proportion reaches 36% in the case of those in their fifties (all these respondents have since left these neighborhoods and do not now live in a Roma segregated environment).

Compared to the overall population, the housing pathways of the Roma population seem to be markedly different. Within the general population the share of upward movers is higher in the youngest age group compared to the Roma sample and

increases considerably when individuals are in their thirties before decreasing slowly across two age groups. The growth of upward movers within the Roma population remains modest, and gains pace only when people are in their fifties. A decline in the value of housing of those individuals classified within the eldest age groups is characteristic of both the general population and the Roma sample.

It is not only the proportion of upward vs. downward movers which differs greatly between the two groups (the upward movers are over 50% of the general population vs. 33% in the Roma sample in total), but also the dynamics; there seems to be a postponement of upwards mobility, meaning that improving housing conditions by leaving Roma neighborhoods happens at a later age. Given that the life expectancy of Roma is lower, the delayed downgrading pattern recalls the pre-transition housing mobility pattern of the general population, when households tended to stay where they had got to at the peak of their housing ladder (HCSO, 2016).

For Roma households we witness that job and education are mentioned as triggers for moving across all age groups (except by individuals in their forties). The proximity of relatives as a trigger is mentioned more often by the youngest and the oldest. One striking driver of upwards movement is the quality of the neighborhood (note that this is not among the 10 most frequently mentioned triggers for the general population), which is important for all age groups, but especially for the oldest ones.

Downward mobility triggers across age groups show some interesting features, too. Partnership formation may cause downward moves, especially in the second age cohort, but compared to upward triggers, we find approximately the same distribution of responses, except for the oldest group. Divorce remains marginal as a reason for moving across age groups. This is an even more important finding, given that this is the most important trigger in terms of downward moves for the middle-aged in the general population, and those who are older.

There are four core findings:

(1) Some triggers for upward moves seem to be less relevant for Roma than for the average population. Neighborhood characteristics, quality and size of dwellings, and moving for jobs or education are among these triggers. This may be connected with norm-framed expectations and social inequalities: the generally lower level of housing consumption may push households to move

to segregated neighborhoods to satisfy the need for room despite bad quality and low neighborhood status; moving for a job means moving to a higher priced area which may not be affordable.

(2) While household formation and becoming independent seems to play a similar role, divorces do not play out as important drivers of downward movement in Roma segregated neighborhoods.

(3) Within the total Roma sample, the proximity of relatives is more strongly connected with upwards moves than downward moves. This may be due to the fact that the most upwardly mobile age group is less present in segregated Roma neighborhoods (see above).

(4) The gap between the relevance of upward mobility triggers may be connected with constraints stemming from social inequalities.

I also developed a logit model to check what triggers are at play, since the life cycle model does seem to be only marginally present in the case of Roma households (or at best it follows a pattern that was prevalent a generation ago, with people stopping moving at the peak of their housing career). We have also seen that changes in household structure – including divorce or marriage – do not predict upward or downward moves, as opposed to the situation with the general population. Triggers and constraints obviously affect each other differently in the case of Roma households. The model demonstrates the following findings:

(1) with increasing age (across four age groups, given the small sample size), the chance of downward mobility decreases.

(2) Education, unsurprisingly, reduces downward mobility considerably, especially in the best educated groups (in our model: maturity included), who are only a quarter as likely to move down as people with an unfinished education.

(3) Household size seems to be a relevant trigger / constraint only in four-person or six-or-more person households. In four-person households, the probability of moving down doubles compared to single households, and in the largest households it triples.

(4) Social networks have an impact as well. When the network of the household is not overwhelmingly composed of Roma only, the chance of

moving down decreases considerably. Even when just half of the network is composed of non-Roma, the chance of moving to a segregated Roma neighborhood diminishes to approximately two-fifths of that compared to households whose friends are exclusively Roma (note that reverse causalities may be at play).

(5) Unfortunately, the settlement-size-related constraint proves to be relevant only specifically for towns: compared to Budapest, living in a municipality of over 5000 inhabitants radically increases the chance of moving downward – meaning that Budapest is a "safe" place in terms of stability.

(6) Labor market participation operates as expected: if one does not have a job or engage in any labor market activity, the odds of moving down increase over 1.8 times, representing one of the strongest constraints, besides low education, large household size, and limited social network.

(7) Households that do not have to ask for financial aid from relatives and friends in times of hardship are much less exposed to downward moves compared to those who depend on regular help from their kinship and network. Interestingly, those who seldom receive any financial aid seem to be more secure than those households who never do.

5 Third perspective: Interventions and policy implications

Lessons from the field and an empirically calibrated micro-model shows what processes fuel local-level segregation in order to conclude with some policy implications.

I showed that the pace of further segregation can be altered if selected dimensions of inequality are tackled, and individual adjustment strategies are counter-incentivized. This has policy implications, too: if escaping from segregated environments becomes possible only if routes other than housing mobility channels are also open, policy design which does not take into account both layers of adjustment may fail.

Previous research shows that when there is spatial concentration of socially vulnerable inhabitants, municipalities are even harder hit by service-related duties that require additional funding. There are several responses to such increased needs: 1. do nothing

and let the population exist with low capacity services, resulting in under-served areas and further downward perpetuation of areas due to under-investment into services; 2. increase service capacity and diversify it according to needs; 3. decrease public service delivery capacities further, on the one hand resulting in an outflow of inhabitants from the area, mostly followed by the inflow of even poorer residents as real estate prices fall, and the creation of "parallel" service delivery – for example, by charity organizations – similarly to what is termed "diseconomies of conflict" (for case studies for each scenario, see Teller, 2009).

In the Hungarian context, similarly to in other Central East European countries, the spatial reallocation of Roma to poor but moderate housing through the process of integration into the industrializing and workforce-hungry labor market went along with the launch of numerous integration or assimilation policies for Roma, including settlement abolishment and resettlement actions (Hajnáczky, 2015; Teller, 2018). The first evaluations found despair and severe levels of housing poverty, which showcased the inefficiency of state housing policy which relocated Roma into poor, vacant, low quality housing (Dupcsik, 2009). In later decades, some municipalities, principally cities, attempted to tackle housing poverty with diverse measures such as infrastructural investment, housing allowances, and debt management interventions, but these policies are often framed by a "punishment-of-the-poor" approach, primarily involving moving Roma families into a segregated social housing environment (Teller, 2018).

Thus, most recent interventions have been launched in environments in which there is a serious gap compared to that of the non-Roma in terms of physical housing conditions (a 20-40-year lag). The peripheral locations of Roma neighborhoods often lead to worse access to various services, hence less coverage and efficiency. In terms of housing, it is not only physical conditions that can be critical, but households are frequently exposed to tenure-related insecurity for various reasons (e.g. unclear titles or arrears). Thus, there is a complexity of housing- and service-access-related issues to be addressed at the local level, beyond the constraints that prevail at the individual household level.

Still, field experience shows that local interventions continue to remain at the level of "fixing threats to life"; that is, they deal with bringing up the worst quality housing to a minimum standard. The upgrading of infrastructure (access to water, electricity, and

sewage systems) and improving access (road and transportation) contribute to in-situ upgrading, often accompanied by legalization- or formalization-related interventions. Regardless, some core issues remain outside the scope of local programs, such as improving affordability and creating new mobility channels (especially through rehousing families into an integrated environment, moving them out, or demolishing fully segregated neighborhoods). While local programs are very often implemented in poor municipalities (given that poverty and destitution are concentrated in backward regions), the design of effective labor market interventions and training/education is often ad hoc, without offering long-term perspectives for families.

A further lesson is that fragmented communities need long-term commitment, so that beyond individual case management, community development can become part of the agenda. And finally, the sustainability and embeddedness of interventions depends on whether and how discrimination can be and is addressed locally, and more broadly – for example, whether sectoral policies (like those involving the education and labor market) address this challenge. In the Hungarian context, this clearly seems to be one of the weakest and most detrimental factors, as shown from the quantitative data analysis. Field work experience testifies that this is why the long-term impact of local-level interventions may remain modest, if not partial, in the context of current mainstream policies.

In order to investigate potentially effective entry points into segregation processes, I composed a Netlogo micro-simulation of neighborhood processes characterized by (1) a value gap, (2) an income gap, (3) discrimination, and (4) housing market status/stigma below a certain housing value. The model was solely included to show that some individual-level triggers may impact the speed of decline, thus, building even on this constrained set of triggers can effectively impact the success of policy interventions.

Based on the model I put forward the claim that in the case of small minority communities the value gap between the cheaper segment and the majority higher value segment should be bridged to tackle decline. Income differences are not as defining in terms of the pace of decline, in contrast to the “perception” of when housing becomes part of the lower status segment. Decline will happen fast at a low level of discrimination if the distance between the two sub-segments is considerable.

Preventative interventions are needed in the case of neighborhoods with small ethnic communities to make sure that mid-term decline linked with income gap and discrimination (and external stigmatization of lower segment dwellings) does not surge. Neighborhoods with a combination of low social and price differences and high discrimination are especially prone to such tipping points, even if the market is relatively tolerant (i.e. can tolerate a significant value decrease before a dwelling becomes classified as lower market segment stock).

In the case of neighborhoods with a balanced share of ethnic groups, there are three key combinations that lead to decline: (1) high income gap and even higher value gap combined with low levels of discrimination, (2) high levels of discrimination combined with a modest price gap and less substantial income differences, (3) The third combination leads to slightly later tipping of the situation, and is connected with a minimal value gap, modest discrimination, but an extensive income gap, and a permissive housing market reaction to the decreasing status of housing. The latter combination is a clear warning that if income differences remain unaddressed despite a range of policies and actions, decline will happen in such ethnically mixed communities as early as at the midpoint.

The model demonstrates that there are key triggers of decline at the micro-level which exist in combination and interaction, some of which will materialize only in the mid- or long-term, but then proceed rapidly. Given that policies and programs are often neighborhood based, it is thus of great importance that they are designed with an awareness of such intersectional spatial processes. Interventions seldom tackle these issues in their complexity, and even more rarely by addressing the sectoral policy linkages which result in the above-mentioned differences in income, value gap, and discrimination. For the effectiveness of local projects to be improved the above lessons should at least be carefully tested within the select neighborhoods, and related interventions should be designed accordingly – within and across the boundaries of neighborhoods.

6 Summary

Based on quantitative and qualitative analyses, and supplemented by evidence from a micro-simulation model, I conclude that, due to their historical development, urban

and rural segregated neighborhoods in Hungary play a special role in the housing pathways of Roma, and that the social inequalities associated with the Roma go hand in hand with the spatial distance and segmentation of the housing market. There are drivers at both the policy and contextual level which foster the growth and preservation of segregated neighborhoods, reinforcing the growing inequality between segregated neighborhoods and other housing market segments which manifest at the institutional level in the current Hungarian context.

Quantitative data were used to compare the mobility pattern of marginalized families, Roma families, and the general population. The emerging patterns among Roma households – which seem to be significantly different from the general trend – cannot be explained by their social deprived status only. The data demonstrate and illustrate that there have been considerable improvements in Roma housing conditions in the past decades, and that the "gap" in housing quality has somewhat closed. However, the proportion of those living in segregated neighborhoods has not diminished at all, and despite the closing gap in housing quality among Roma and non-Roma, growth in the concentration of the population of the same ethnicity has taken place.

Approximately 40% of all age cohorts of Roma that were surveyed have never lived in a segregated neighborhood. The youngest and the oldest (that is, people just about to establish a housing career, and those towards the end of their housing pathway) are more likely to live in Roma settlements compared to other age groups. The same is true of past experience of living in a segregated neighborhood: a third (34%) of households with a middle-aged head of the family have lived in segregated neighborhoods; and this proportion reaches 36% in the case of those in their fifties (all these respondents have since left these neighborhoods and do not now live in a Roma segregated environment).

Compared to the overall population, the housing pathways of the Roma population seem to be markedly different. Within the general population the share of upward movers is higher in the youngest age group compared to the Roma sample and increases considerably when individuals are in their thirties before decreasing slowly across two age groups. The growth of upward movers within the Roma population remains modest, and gains pace only when people are in their fifties. A decline in the value of housing of those individuals classified within the eldest age groups is characteristic of both the general population and the Roma sample.

The triggers for becoming trapped in segregated neighborhoods are unfinished and low education, large household size (it triples in case of 6 person households compared with single households), Roma-only social network (more than two times compared with 50-50% of Roma and non-Roma friends), smaller settlement size, unemployment (nearly double the odds), and lack of a reciprocal support network.

The micro-simulation of segregation processes relating to discrimination, income gap, value gap and perception of decline in a neighborhood shows the necessity to tackle these issues in their complexity, and to address sectoral policy linkages which result in the above-mentioned differences. For the effectiveness of neighborhood based local projects, these aspects should at least be carefully observed and followed up.

7 References

Bernát, A. (2019): Integration of the Roma in Hungary in the 2010s. In: Tóth, I. Gy. (ed): *Hungarian Social Report 2019*. Budapest: Tárki, pp. 195-214.

Clapham, D. (2002): Housing Pathways: A Post Modern Analytical Framework, In: *Housing, Theory and Society*, 19:2, pp. 57-68., DOI: 10.1080/140360902760385565

Clark, K. (1965): *Dark Ghetto*, Harper and Row: New York

Dupcsik, Cs. (2009): *A magyarországi cigányság története*, Budapest: Osiris

European Commission/World Bank (2014): Handbook for improving the living conditions of Roma, retrieved from http://documents.worldbank.org/curated/en/426791468030548664/pdf/923950WP0P14390C00Handbook0complete.pdf

Feischmidt, M. & Szombati, K.: (2014): Ahol a kölcsönös félelem igazgat, In: Szuhay P. (ed.): *Távolodó világaink – A cigány-magyar együttélés változatai*. Cigány Néprajzi Tanulmányok 16., pp. 377-387.

Földi, Zs. (2006): *Neighbourhood Dynamics in Inner-Budapest - a realist approach.* Doctoral thesis. Netherlands Geographuical Studiesm 350, Utrecht University

Hajnáczky, T. (2015): *„Egyértelmű, hogy a cigányok nem tekinthetőek nemzetiségnek.” Cigánypolitika Dokumentumokban 1956–1989*, Gondolat Kiadó

Havas, G. (2008): Esélyegyenlőség, deszegregáció, In Fazekas, K., Köllő, J., & Varga, J. (eds.): *Zöld könyv a magyar közoktatás megújításáért*, Ecostat: Budapest, pp. 121-138.

HCSO (2016): *Miben élünk? A 2015. évi lakásfelmérés főbb eredményei*. Retrieved from http://www.ksh.hu/docs/hun/xftp/idoszaki/pdf/miben_elunk15.pdf

Hedström, P. (2005): *Dissecting the Social. The Principles of Analytical Sociology*. Cambridge University Press, Cambridge

Hegedüs, J. & Teller, N. (2006): The privatisation of the housing stock in Eastern Europe: Hungary, In: N. Horsewood and P. Neuteboom (eds.): *The social limits to growth. Security and insecurity aspects of home ownership*, Delft University Press, Volume 31 Housing and Urban Policy Studies, pp. 137-160.

Jelinek, Cs. & Virág, T. (2019): *György-telep. Ten Years of Urban Regeneration in a Poor Neighbourhood, Hungary*. RELOCAL Case Study N° 14/33. Joensuu: University of Eastern Finland. Retrieved from: https://relocal.eu/wp-content/uploads/sites/8/2019/05/14_HU-Case-2-Social-Urban-Regeneration.pdf

Kertesi, G. (2005): *A társadalom peremén: Romák a munkaerőpiacon és az iskolában*, Budapest: Osiris Kiadó

Ladányi, J. & Virág, T. (2009): A szociális és etnikai alapú lakóhelyi szegregáció változó formái Magyarországon a piacgazdaság átmeneti időszakában, In: *Kritika*, 2009. július–augusztus, pp. 2-8.

Ladányi, J. (2001): The Hungarian Neoliberal State, Ethnic Classification, and the Creation of a Roma Underclass, In: Emigh, R.J. & Szelényi, I. (ed.): *Poverty, Ethnicity, and Gender in Eastern Europe During the Market Transition*, London: Praeger, pp 67-82.

Messing, V. (2014): Methodological puzzles of surveying Roma/Gypsy populations, In: *Ethnicities*, 14(6), pp. 811–829., DOI: https://doi.org/10.1177/1468796814542180

Peach, C. (1996): Good segregation, bad segregation, In: *Planning Perspectives*, 11(4), pp. 379–398., DOI:10.1080/026654396364817

Schelling, T. (1969): Models of Segregation, In: *The American Economic Review*, Vol. 59, No. 2, Papers and Proceedings of the Eighty-first Annual Meeting of the American Economic Association (May, 1969), pp. 488-493.

Skifter Andersen, H. (2003): *Urban Sores: On the Interaction between Segregation, Urban Decay and Deprived Neighbourhoods*, Routledge, London

Szalai, J. (2004). A jóléti fogda I., In: *Esély*, 2004/6, pp. 19-37.

Teller, N. (2004): Public Administration Reforms in Hungary, In: *Reforming Local Public Administration: Efforts and Perspectives in South-East European Countries*, Zagreb: Friedrich Ebert Stiftung, pp. 58-67

Teller, N. (2009): Vulnerable Groups and the Effects of Selected Local Government Service Delivery Policies in Three Hungarian Cities, In: Pallai, K. (ed): *Who Decides? Development, Planning, Services, and Vulnerable Groups*. OSI/LGI: Budapest, pp. 181-252.

Teller, N. (2018): Adaptációs csapdák – cigánytelepek és lakásutak, In: *Romológia* 2018/14, pp. 93-108.

UN (2014*): Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, and on the right to non-discrimination in this context*, Leilani Farha, A/HRC/28/62, Retrieved from http://daccess-dds-ny.un.org/doc/UNDOC/GEN/G14/248/16/PDF/G1424816.pdf?OpenElement

Vincze, E. (ed.) (2013): Spatialization and Racialization of Social Exclusion: The Social and Cultural Formation of Gypsy Ghettos in Romania in a European Context. Special Issue, *Studia Universitatis Babes- Bolyai. Sociologia.* Introduction. pp. 5-21., Retrieved from http://www.studia.ubbcluj.ro/download/pdf/816.pdf

Wong, G. K. M. (2002): A Conceptual Model of the Household's Housing Decision-Making Process: The Economic Perspective, In: *Review of Urban and Regional Development Studies*, 14(3), pp. 217–234. DOI:10.1111/1467-940x.00055

8 Annexes

8.1 Annex 1. List of fieldwork-related projects

The list below contains those consultancy and research projects carried out during former professional activity which helped generate empirical evidence for the qualitative research component of the thesis.

1) Researcher for the Maltese Charity Service: assessing the impact of local inclusion projects in four Hungarian and four Romanian Roma settlements (2019-2020) (Design of research methods and data collection, fields visits and reporting on the social work methods and social inclusion project activities applied in the settlements)
2) Consultant for the World Bank on restructuring the Hungarian Labor Market Profiling system (2017-2019) (Consultant in the advisory project, conducting field research and analysis related to the profiling activities and labor market service design for vulnerable groups, among them marginalized Roma)
3) Consultant: designing housing and education desegregation policies funded from ESIF in Hungary (2016- 2018 and 2019-2020) (Consulting the Hungarian Authorities and the EC about investments and project design)
4) Consultant: design of the impact assessment of the social integration activities of the Maltese Charity Service in Tiszabő and Tiszabura (2016-17) (Design of the monitoring indicators for assessing the impact of the local activities)
5) Consultant: Evaluation of Roma Settlement Integration Projects commissioned by TKKI/MHC (2016) (Co-author of the evaluation report of Complex Roma Settlement Integration projects running in Hungary between 2012 and 2016)
6) Consultant: producing a Desegregation Guidance Note commissioned by DG Regio (2014-2015) (Preparation of the Note for MAs and implementing bodies to support ESIF investments that would result in desegregation of marginalized Roma in education and housing in the 2014-2020 programming period, including field visits in Hungary, Spain, Slovakia, and Romania)

7) Short-term consultant for World Bank RAS in mapping the development impact of local equality plans in Hungary (2014-2015) (Conducting field research and data analysis, including co-authoring a handbook for the better design of local-level inclusion projects in line with local equality programs in Hungary)
8) Consultant for MtM/OSI during the production of a Toolkit for Roma Integration, specific thematic focus on housing integration (September 2013 - April 2014) (Preparation of the thematic chapter of housing integration prepared for EC staff [available on the intranet of the EC] and MA personnel to support the Roma integration process in the 2014-2020 programming period)
9) Assistant: research on Roma political elites at the Hungarian Academy of Sciences (Summer 2015) (Production of a case study on the housing-related action of the Roma civil right movements)
10) Consultant to Eruditio Zrt. in the elaboration of the Roma Settlement Integration Strategy commissioned by the Ministry for Human Resources in Hungary (July – September 2013) (Carrying out secondary data analysis of segregation and housing processes in Hungary, and designing policy responses to the housing segregation of Roma in Hungary)
11) Researcher for the Maltese Charity Hungary in the SEE PAIRS project (thematic expert for housing inclusion of Roma) (January 2013 - January 2015) (Leading the Hungarian data collection process, synthesis of international analytical activities, and heading the working group on the housing integration of Roma, including conducting field visits in Hungary and Serbia).
12) Consultant to the National Development Agency (financed from MtM/OSI resources) on programming ERDF funding for Roma housing integration projects (September 2012 – August 2013) (Consulting the NDA on producing the call for tenders for settlement reintegration projects financed from ERDF, including field visits in Hungary)
13) Co-researcher in project assessing inclusive development policies in education and housing in Hungary (2012-2013) (Conducting data analysis and field research to assess the impact of equality-based education and urban development investments, including field visits)

14) Consultant: selection of best practices of Roma inclusion in the CEE and SEE region for the MERI network, commissioned by MtM/OSI (July – October 2012)

(Design of the framework of analysis and evaluation, and selection of good-practice cases with regard to employment, community work integration, and housing)

15) Lead researcher: Evaluation of the first year of the National Roma Inclusion Strategy of Hungary, commissioned by the Roma Decade Secretariat, Hungary (September 2012 - April 2013), and lead researcher in the updating process in 2014 and 2015 (Based on a template provided by the Roma Decade Secretariat, leading the evaluation activities of a civil society coalition)

16) Research on barriers to social housing for the homeless in 13 European countries (in the framework of the European Observatory on Homelessness) (October 2010 – June 2011) (Lead researcher in the analysis of social housing allocation techniques in EU member states related to their impact on access to housing of the homeless)

17) Lead Researcher: Evaluation of social inclusion projects financed from the HRD OP in Hungary (June 2012 – March 2013), commissioned by the National Development Agency (Developing the framework of evaluation and leading the research on the impact of EU-funded measures for social inclusion, including early childhood education, housing, labor market, and training)

18) Researcher: Needs Assessment project commissioned by the Maltese charity that targeted the alleviation of child poverty (January – July 2012)

(Implementing micro-regional level analysis of social processes in selected backward regions in Hungary to design better targeted complex inclusion programs for the alleviation of child poverty, including field visits to some micro-regions)

19) Lead Researcher: assessment of selected EU-funded programs in Hungary related to Roma integration effects, commissioned by the National Development Agency (March – December 2011) (Developing the framework of evaluation and leading the research on the impact of EU-funded measures for social inclusion, including field visits)

20) Research Assistant: CEU-Romaversitas-Hungarian Academy of Sciences project on the education policies of 100 Hungarian cities (2010-11)
(Assistance in producing the data collection tool for spatial segregation and conducting field research in four cities on local education policies and social exclusionary mechanisms)
21) Research into housing programs for vulnerable groups and Roma in five Central European countries in order to foster the application of ERDF resources, commissioned by OSI (March 2010 – June 2011) (Developing a Vademecum for housing integration projects based on field case studies and secondary literature, and co-organizing a workshop for decision makers at the national level for CEE countries concerning better programming of EU funds for Roma housing inclusion, including field visits in the five countries)
22) Member of the Expert Group on the adaptation of the Harlem Children Zone program for Roma in Hungary (April – September 2010), commissioned by the Ministry of Human Resources (Field visit to the USA and developing the main lines of adaptation of the HCZ in Hungary)
23) Evaluation of the Roma Settlement Rehabilitation interventions in 2005-2008 commissioned by the Ministry of Human Resources (April – August 2010)
(Consultant for the evaluation report on the first phases of the Roma housing integration projects)
24) Research about Poverty Housing in Hungary commissioned by Habitat for Humanity, Hungary (August – October 2009)
(Secondary and primary data analysis regarding housing conditions and policy developments in Hungary)
25) Researcher in the framework of the EU 7th Framework Project on Demographic Changes and Housing Wealth (DEMHOW) (September 2008 – December 2011)
(Part of the Hungarian research team for the project, carrying out qualitative and quantitative data collection and analysis, and editing related publication)
26) Advisor to the State-Level Ministry of Human Rights and Refugees in Bosnia and Herzegovina, commissioned by the EC (April – July 2008)
Social housing advisor of the MHRR of Bosnia and Herzegovina within the Service Contract No 2007/137-364 EuropeAid/123505/C/SER/BA

27) Policy Research Fellow at the Open Society Institute Budapest (2006-2007) (Analysis of the Spatial Concentration of Vulnerable Groups and the Effects of Selected Local Government Service Delivery Policies in three Hungarian Cities: The cases of Tatabánya, Miskolc, and Magdolna District, Budapest, based on field work and individual research)

28) Member of the Hungarian Project Team in the ESPON 1.4.2 Framework program, research topic: Housing and Regional Development (October 2005 – October 2006)

    (Analysis based on the data collection, literature review, and data review of regional processes in housing and housing policy in the EU)

29) Origins of Security and Insecurity of Homeownership (OSIS): European 6th Framework program (September 2004 – December 2006)

    Part of the Hungarian project team in the three-year program aimed at implementing an in-depth macro-, micro- and qualitative analysis of housing systems

30) Consultant: Roma Housing and Social Integration Program, giving technical advice to mentors on a local level, monitoring the program in its assessment phase in 2006 (September 2004 – August 2006)

    Consulting local-level projects related to housing measures and the design and implementation of the monitoring of the program's pilot phase

8.2 Annex 2. Downward mobility in the Logit model

Model Output (generated in SPSS).

Notes

Syntax		logistic regression var=mobility_2dir /method=ENter korcsop4 iskveg4_n htletsz6 network settlement_4 work_n j20 /CONTRAST (settlement_4)=INDICATOR(1) /CONTRAST (htletsz6)=INDICATOR(1) /CONTRAST (korcsop4)=INDICATOR(1) /CONTRAST (iskveg4_n)=INDICATOR(1) /CONTRAST (network)=INDICATOR(1) /CONTRAST (work_n)=INDICATOR(1) /CONTRAST (j20)=INDICATOR(1) /CRITERIA=PIN (.5) POUT (.10) ITERATE(50) CUT(.5).
Resources	Processor Time	00:00:00,06
	Elapsed Time	00:00:00,05

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	893	44,6
	Missing Cases	1111	55,4
	Total	2004	100,0
Unselected Cases		0	,0
Total		2004	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
upward movers	0
downward movers	1

Categorical Variables Codings

			Parameter coding				
		Frequency	(1)	(2)	(3)	(4)	(5)
Household size - 6 groups	1,00	76	,000	,000	,000	,000	,000
	2,00	129	1,000	,000	,000	,000	,000
	3,00	162	,000	1,000	,000	,000	,000
	4,00	170	,000	,000	1,000	,000	,000
	5,00	153	,000	,000	,000	1,000	,000
	6 or more	203	,000	,000	,000	,000	1,000
What is the share of Roma among your friends?	all of them are Roma	225	,000	,000	,000	,000	
	majority of them are Roma	233	1,000	,000	,000	,000	
	half-half of them are Roma and non-Roma	299	,000	1,000	,000	,000	
	majority of them are not Roma	91	,000	,000	1,000	,000	
	no Roma	45	,000	,000	,000	1,000	
Finished education 4 groups	less than 8 grades	144	,000	,000	,000		
	8 grades	485	1,000	,000	,000		
	vocational education	216	,000	1,000	,000		
	maturity or higher	48	,000	,000	1,000		
Has your household/ family received any financial aid from other households?	yes, regularly	25	,000	,000	,000		
	yes, from time to time	77	1,000	,000	,000		
	yes, seldom	60	,000	1,000	,000		
	no	731	,000	,000	1,000		
Settlement size - 4 groups	Budapest	95	,000	,000	,000		
	county seat, city with county rights	121	1,000	,000	,000		
	other town above 5000 inhabitants	263	,000	1,000	,000		
	settlement with less than 5.000 inhabitants	414	,000	,000	1,000		
4 age groups	- 30	233	,000	,000	,000		
	31 - 40	261	1,000	,000	,000		
	41 - 50	216	,000	1,000	,000		
	51 -	183	,000	,000	1,000		
Do you work or do you have a job (including temporary work and business)?	yes	206	,000				
	no	687	1,000				

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted		
			Sample of upward and downward movers		
			upward movers	downward movers	Percentage Correct
Step 0	Sample of upward and downward movers	upward movers	497	0	100,0
		downward movers	396	0	,0
	Overall Percentage				55,7

a. Constant is included in the model.
b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-,227	,067	11,374	1	,001	,797

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	4 age groups	10,580	3	,014
		4 age groups (1)	,307	1	,580
		4 age groups (2)	2,369	1	,124
		4 age groups (3)	1,424	1	,233
		Finished education 4 groups	40,609	3	,000
		Finished education 4 groups(1)	6,550	1	,010
		Finished education 4 groups(2)	17,752	1	,000
		Finished education 4 groups(3)	13,465	1	,000
		Household size - 6 groups	22,476	5	,000
		Household size - 6 groups(1)	,649	1	,420
		Household size - 6 groups(2)	2,958	1	,085
		Household size - 6 groups(3)	,854	1	,355
		Household size - 6 groups(4)	,023	1	,880
		Household size - 6 groups(5)	20,223	1	,000
		What is the share of Roma among your friends?	54,842	4	,000
		What is the share of Roma among your friends?(1)	,011	1	,917
		What is the share of Roma among your friends?(2)	9,497	1	,002
		What is the share of Roma among your friends?(3)	10,215	1	,001
		What is the share of Roma among your friends?(4)	6,001	1	,014
		Settlement size - 4 groups	22,568	3	,000
		Settlement size - 4 groups(1)	,070	1	,792
		Settlement size - 4 groups(2)	4,511	1	,034
		Settlement size - 4 groups(3)	,534	1	,465
		Do you work or do you have a job (including temporary work and business)?(1)	28,437	1	,000
		Has your household/ family received any financial aid from other households?	5,615	3	,132
		Has your household/ family received any financial aid from other households?(1)	,198	1	,656
		Has your household/ family received any financial aid from other households?(2)	3,160	1	,075
		Has your household/ family received any financial aid from other households?(3)	,021	1	,883
	Overall Statistics		127,074	22	,000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	137,123	22	,000
	Block	137,123	22	,000
	Model	137,123	22	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1089,390[a]	,142	,191

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Classification Table[a]

			Predicted		
			Sample of upward and downward movers		
	Observed		upward movers	downward movers	Percentage Correct
Step 1	Sample of upward and downward movers	upward movers	373	124	75,1
		downward movers	175	221	55,8
	Overall Percentage				66,5

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	4 age groups			9,492	3	,023	
	4 age groups (1)	-,470	,200	5,537	1	,019	,625
	4 age groups (2)	-,423	,212	3,992	1	,046	,655
	4 age groups (3)	-,638	,226	7,966	1	,005	,528
	Finished education 4 groups			16,110	3	,001	
	Finished education 4 groups(1)	-,565	,211	7,199	1	,007	,568
	Finished education 4 groups(2)	-,877	,251	12,228	1	,000	,416
	Finished education 4 groups(3)	-1,383	,443	9,751	1	,002	,251
	Household size - 6 groups			17,028	5	,004	
	Household size - 6 groups(1)	,629	,325	3,739	1	,053	1,877
	Household size - 6 groups(2)	,473	,317	2,218	1	,136	1,605
	Household size - 6 groups(3)	,653	,315	4,291	1	,038	1,922
	Household size - 6 groups(4)	,611	,320	3,653	1	,056	1,842
	Household size - 6 groups(5)	1,145	,309	13,749	1	,000	3,142
	What is the share of Roma among your friends?			29,145	4	,000	
	What is the share of Roma among your friends?(1)	-,575	,206	7,818	1	,005	,563
	What is the share of Roma among your friends?(2)	-,925	,195	22,578	1	,000	,396
	What is the share of Roma among your friends?(3)	-1,039	,296	12,355	1	,000	,354
	What is the share of Roma among your friends?(4)	-1,257	,382	10,803	1	,001	,285
	Settlement size - 4 groups			8,603	3	,035	
	Settlement size - 4 groups(1)	,637	,339	3,522	1	,061	1,890
	Settlement size - 4 groups(2)	,815	,308	7,003	1	,008	2,260
	Settlement size - 4 groups(3)	,482	,303	2,530	1	,112	1,619
	Do you work or do you have a job (including temporary work and business)?(1)	,601	,199	9,074	1	,003	1,823
	Has your household/ family received any financial aid from other households?			9,879	3	,020	
	Has your household/ family received any financial aid from other households?(1)	-,941	,503	3,501	1	,061	,390
	Has your household/ family received any financial aid from other households?(2)	-1,600	,525	9,298	1	,002	,202
	Has your household/ family received any financial aid from other households?(3)	-1,142	,443	6,653	1	,010	,319
	Constant	,764	,618	1,527	1	,216	2,146

a. Variable(s) entered on step 1: 4 age groups , Finished education 4 groups, Household size - 6 groups, What is the share of Roma among your friends?, Settlement size - 4 groups, Do you work or do you have a job (including temporary work and business)?, Has your household/ family received any financial aid from other households?.

8.3 Annex 3. The Netlogo model of segregation-contextualised decline

```
globals [
  percent-similar  ;; on the average, what percent of a turtle's neighbors
                   ;; are the same color as that turtle?
  percent-unhappy  ;; what percent of the turtles are unhappy?
]

turtles-own [
  happy?           ;; for each turtle, indicates whether at least nr of similar-wanted turtles
are around, that are the same colour
  similar-nearby   ;; how many neighboring patches have a turtle with my color?
  other-nearby     ;; how many have a turtle of another color?
  total-nearby     ;; sum of previous two variables
income-level ;; income level of the turtle depending on the colour of the patch it is on

]

patches-own [
reds-nearby ;; how many neighboring patches have a red turtle?
yellows-nearby ;; how many neighboring patches have a yellow turtle?
local-income ;;-- changes with the individial that stands on it
av-income ;; the value of the patch
]

to setup
  clear-all
      ask n-of number patches   [set pcolor grey + 2] ;; creation of the housing market
  ask n-of (number * ratio) patches   [set pcolor white] ;; one submarket
   ask n-of number patches [sprout 1 [ set color black   set income-level red-income-
level] ]
  ;; turn a ratio the turtles yellow - according to ratio slidert
  ask n-of (number * ratio ) turtles
    [ set color yellow  set income-level yellow-income-level]  ;; the other submarket
  ask patches [if pcolor = white [
    set av-income  white-patch-value]]
  ask patches [ if pcolor != white [ set av-income  other-patch-value]]
  reset-ticks
end

;; run the model for one tick
to go
    if ticks >= years [stop] ;; stops after years slider max

   rent-seek ;; to earn/lose money while moving across the subsectors
  move-unhappy-turtles
  update-turtles
  update-globals
  update-patches
```

```
  tick
end

to rent-seek ;; patch value defines the level of income of the turtle.
  ask turtles
    [
    if pcolor = white [
      set income-level (av-income * income-level );; all transactions of lower market segment
    ]]
    ask turtles
  [if pcolor != white [
      set income-level income-level ;; all transactions of the higher market segment
    ]
  ]
   end


to move-unhappy-turtles
  ask turtles [
  ifelse   similar-nearby <= min-similar-neighbours ;;only those turtles move away whose different neighbors are more than the min nr of similar neighbours they wish to have
     [ find-new-spot ] ;; move turtles further if they are unhappy with the number of similar turtles
    [move-close] ;; move turtles closer if the number of similar neighbours is OK
  ]
     end

to find-new-spot
    rt random-float 360
    fd random-float 10
  if any? other turtles-here ;; keep going until we find an unoccupied patch
  [ find-new-spot ]  setxy pxcor pycor   ;;
end

to move-close
    rt random-float 1
    fd random-float 1
  if any? other turtles-here ;; keep going until we find an unoccupied patch
 [ find-new-spot ]  setxy pxcor pycor

end


to update-patches
ask turtles [ ask patch-here [ set local-income [ income-level ] of myself ]]
ask patches [
     if (local-income < threshold-to-become-white) [ set pcolor white]
```

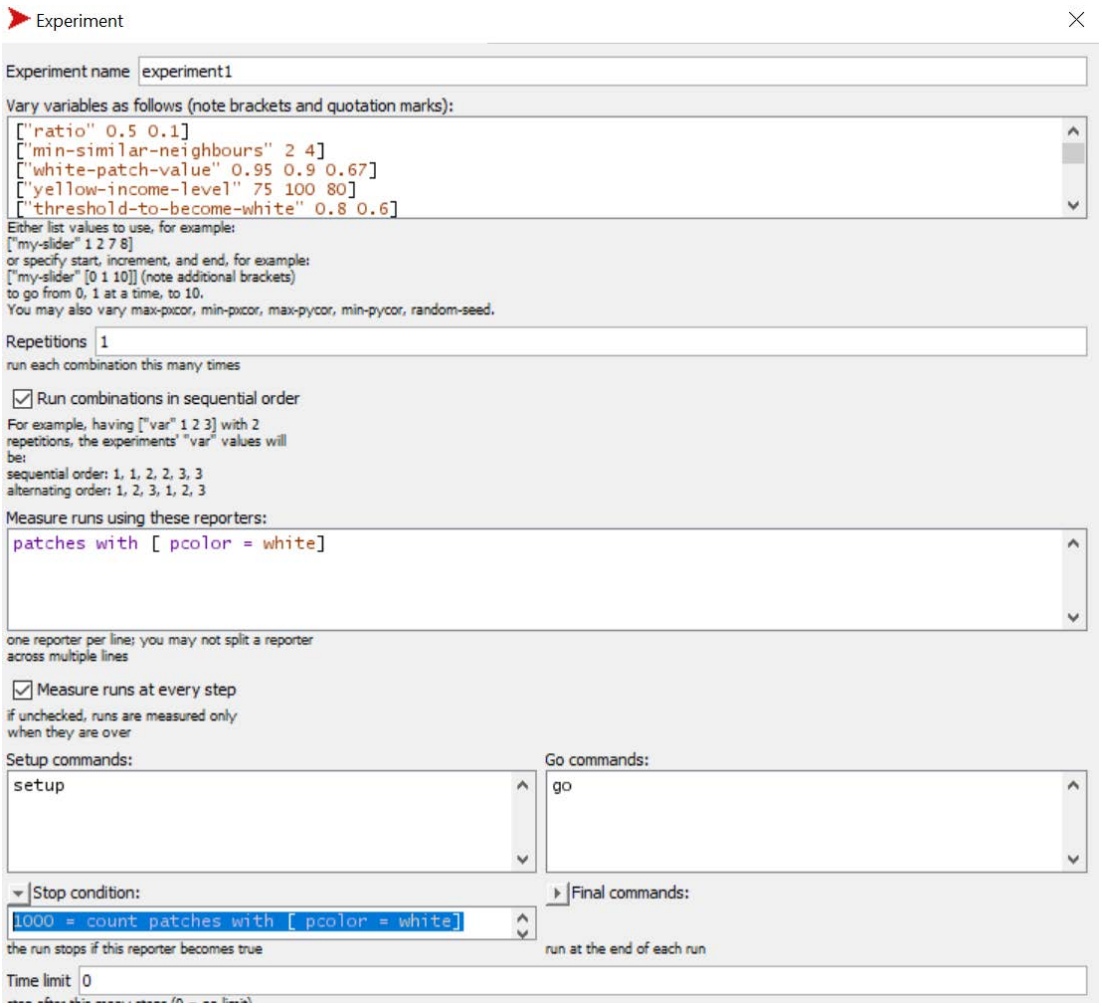
```
  ]
end

to update-turtles
  ask turtles [
    ;; in next two lines, we use "neighbors" to test the eight patches
    ;; surrounding the current patch
    set similar-nearby count (turtles-on neighbors)  with [ color = [ color ] of myself ]
    set other-nearby count (turtles-on neighbors) with [ color != [ color ] of myself ]
    set total-nearby similar-nearby + other-nearby
    set happy? similar-nearby >=  min-similar-neighbours
    ;; add visualization here
    if visualization = "old" [ set shape "default" ]
    if visualization = "square-x" [
      ifelse happy? [ set shape "square" ] [ set shape "square-x" ]
    ]
  ]
end

to update-globals
  let similar-neighbors sum [ similar-nearby ] of turtles
  let total-neighbors sum [ total-nearby ] of turtles
  set percent-similar (similar-neighbors / total-neighbors) * 100
  set percent-unhappy (count turtles with [ not happy? ]) / (count turtles) * 100
end

; Copyright 1997 Uri Wilensky. Modifications and additions by Nóra Teller.
```

8.4 Annex 4. Experiment run in Netlogo BehaviorSpace



9 The author's publications on the topic

Karacsony, Sandor I.; Millan, Natalia; Petric, Alina Nona; Buhler, Dorothee Christine; Ferre, Celine; Torkos, Andras Tamas; Teller, Nora. 2019. *People, Portraits, Perspectives : Improving Employability for Inclusive Growth in Hungary (English)*. Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/600591560973242995/People-Portraits-Perspectives-Improving-Employability-for-Inclusive-Growth-in-Hungary

Hegedüs, J., Somogyi, E. és Teller N (2018): Lakáspiac és lakásindikátorok, In: Társdalmi Riport 2018, pp- 309-327 (in English: Hegedüs, J., Somogyi, E. és Teller N (2018): Housing Market and Housing Indicators, I: Social Report, pp. 258-274pp.)

Teller, N. (2018): Adaptációs csapdák – cigánytelepek és lakásutak, In: Romológia 2018/14, pp. 93-108.

Lux, M., Sunega, P. and Teller, N. (2018): Poor and Vulnerable Groups in Private Renting. In: Hegedüs, József, Lux, Martin, Horváth, Vera (Eds.) Private Rental Housing in Transition Countries. An Alternative to Owner Occupation? Palgrave/MacMillan: London, pp.121-146.

Teller, N. (2017): Csodafegyverek helyett. Abhijit V. Banerjee – Esther Duflo (2016) A szegények gazdálkodása. A szegénység elleni küzdelem teljes újragondolása Balassi Kiadó: Budapest, pp. 254 Fordította: Hudecz András DOI: 10.18030/socio.hu.2017.1.57

Teller, N. (2015): Local Governance, Socio-Spatial Development and Segregation in Post-Transition Hungary. In: Serbian Architectural Journal, Vol 7. Nr 3, pp. 285-298.

Hegedüs, J., Lux, M., Sunega, P. and Teller, N. (2014): Social Housing in Post-Socialist Countries, In: Scanlon,K., Whitehead, Ch., and Arrigoitia, M. F.: Social Housing in Europe, pp.239-253.

Hegedüs, J. and Teller, N. (2012): Social Landlords and Social Housing Management, In: Lux, M., Hegedüs, J. and Teller, N. (eds): Social Housing in Transition Countries, Routledge: New York, pp. 81-97

Berescu, C., Petrovic, M. and Teller, N. (2012): Housing Exclusion of the Roma: Living on the Edge, In: Lux, M., Hegedüs, J. and Teller, N. (eds): Social Housing in Transition Countries, Routledge: New York, pp. 98-116

Teller Nóra (2011): Adaptációs csapdák. In: Kurucz Erika (szerk.): Roma kutatások, 2010: Élethelyzetek a társadalom peremén. Kutatási eredmények a TÁMOP 5.4.1 projekt kutatási pillérében, Budapest: NCSSZI. http://www.modernizacio.hu/download.php?id=589. accessed May 19, 2012

Teller, N. (2009): Vulnerable Groups and the Effects of Selected Local Government Service Delivery Policies in Three Hungarian Cities. In: Pallai, K. (ed): Who Decides? Development, Planning, Services, and Vulnerable Groups. OSI/LGI: Budapest

De Decker, P. and Teller, N. (2007) Introduction, In: M.G. Elsinga, P. De Decker, N. Teller and J. Toussaint (eds.): Home Ownership Beyond Asset and Security, Imprint: Delft University Press, Volume 32 Housing and Urban Policy Studies, pp. 1-14.

Hegedüs, J. and Teller, N. (2007): Hungary: Escape into Home-ownership, In: Elsinga, M., De Decker, P., Teller, N. and Toussaint, J. (eds.): Home ownership beyond asset security. Perceptions of housing related security and insecurity in eight European countries. IOS Press: Amsterdam, pp. 133-172.

Hegedüs, J. and Teller, N. (2007): Managing risks in the new housing regimes of the transition countries – case of Hungary, in Doling J and Elsinga M (eds) (2007) Home Ownership: Getting In, Getting From, Getting Out, Part II, IOS Press: Amsterdam, pp. 175-200.

Hegedüs, J. and Teller, N. (2007): Homeownership and economic transition in Central and East European Countries: Hungary as a case study, In: Horsewood N and Neuteboom P (eds) (2007) Home Ownership: Limits to Growth, IOS Press: Amsterdam

Hegedüs, J. and Teller, N. (2007): The privatization of the housing stock in Eastern Europe – the case of Hungary (with József Hegedüs), In: Horsewood N and Neuteboom P (eds) (2007) Home Ownership: Limits to Growth, IOS Press: Amsterdam

Teller, N. (2007): The Gypsy Debate. Can discourse control?, Joanna Richardson, Exeter: Imprint Academic, 2006, In: European Journal of Housing Research, October 2007, pp. 469-471.