Economic Studies 215

Gabriella Kindström
Urban Dynamics and Contemporary Challenges
The Department of Economics at Uppsala University has a long history. The first chair in Economics in the Nordic countries was instituted at Uppsala University in 1741.

The main focus of research at the department has varied over the years but has typically been oriented towards policy-relevant applied economics, including both theoretical and empirical studies. The currently most active areas of research can be grouped into six categories:

* Labour economics
* Public economics
* Macroeconomics
* Microeconometrics
* Environmental economics
* Housing and urban economics
Gabriella Kindström

Urban Dynamics and Contemporary Challenges

Essays on Housing and Neighborhood Amenities
Abstract


Essay I (with Che-Yuan Liang) We use microdata on the Swedish population and housing stock to investigate how building new homes affects the housing distribution across income groups. While primarily rich people move into new homes, poor people are well represented among in-movers to vacated homes. As homes age and deteriorate, they filter down; it takes approximately 30 years for new homes to reach an even income distribution. We also find that in municipalities with higher construction rates, every income group gets better access to newer housing and housing space. Overall, we conclude that new homes, even those initially primarily inhabited by rich people, lead to substantial trickle-down effects.

Essay II (with Fabian Brunäker, Matz Dahlberg, and Che-Yuan Liang) Using almost three decades of full-population register data with detailed geo-coded information on how and where all individuals in Sweden live, their moving patterns, and their socio-economic characteristics, this paper examines if new large-scale housing construction is a suitable policy tool for revitalizing poor neighborhoods. The answer is yes. We find that not only do new large developments of market-rate condominiums lead to an increase in the average income of 15% in the poorest quartile of neighborhoods, but the average income rises by 10% also in pre-existing homes. We do not find any signs of displacement of incumbent residents.

Essay III Homeowners often oppose new housing due to a fear of declining property values. However, the effect on prices is theoretically ambiguous. In this paper, I study the impact of new large-scale housing on housing prices using Swedish registry data, data on housing prices, and neighborhood amenities. I find that new housing increases prices in low-income neighborhoods. In contrast, high-income neighborhoods experience a decline in prices, including within their pre-existing housing stock. The latter could partly stem from a suggested increase in densification.

Essay IV Can policymakers affect spatial inequalities by providing local amenities? In this study, I explore the effects of schools on neighborhoods by studying school closures. Using geo-coded, full-population Swedish microdata, I find that school closures decrease the share of high-income earners, primarily attributed to individuals with children. This effect is more pronounced in urban areas, while rural areas become depopulated. These effects align with pre-existing trends, indicating that school closures exacerbate initial spatial inequalities.

Keywords: Housing Supply, Housing Inequality, Gentrification, Spatial Inequality

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To my grandmother Ann-Marie
There have been several moments of self-doubt during which I found it hard to imagine ever completing this thesis. Despite feelings of mediocrity and insufficiency, I did, and this achievement would have been impossible on my own. I am incredibly thankful to all of you who provided support and assistance during the process of creating this masterpiece. My supervisors, Che-Yuan Liang and Matz Dahlberg, have been instrumental in guiding and enhancing my work over the course of nearly five years. To Che, I extend my deepest gratitude for your patience and endless creativity in your guidance. Matz, your expertise in urban economics has been invaluable, and I have truly appreciated your positive feedback and kind words, especially during moments of doubt.

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Stockholm, April 2024
Gabriella Kindström
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Introduction

We live in an urban era. In 2022, approximately 55 percent of the world’s population resided in urban areas, and projections suggest that this figure will increase to 70 percent by 2050 (United Nations 2023). Alongside flourishing cities, this sustained trajectory of urbanization brings forth various challenges, including housing shortages, spatial inequalities, and a decline in housing affordability. The urge to address these issues is reflected in the United Nations’ Sustainable Development Goals, emphasizing inclusive and sustainable urban development (United Nations 2023). However, housing policies intended to combat such undesirable trends tend to carry ideological undertones and often suffer from a lack of comprehension regarding their effects.

This thesis addresses contemporary urban challenges within the context of Sweden. In four closely related essays, themes such as housing affordability, gentrification, and spatial inequalities are explored. In order to understand the current situation, it is crucial to gain an insight into the history of housing politics. In this introduction, I provide a brief overview of the institutional background shared by the essays to facilitate their placement in the ongoing policy debate.

In Sweden, urbanization gained significance with industrialization at the end of the 19th century, spurring rapid urban migration. By the 1930s, half of Sweden’s population was concentrated in cities, a stark contrast to the mere 10 percent about 100 years earlier (Statistics Sweden 2015). The rapid urbanization, coupled with factors such as population growth and economic gains after the Second World War, led to increased demand for housing (the Swedish National Board of Housing, Building and Planning 2023a). To meet the demand in a time of high interest rates and construction costs, the government implemented economic support for the housing sector to facilitate housing construction (the Swedish National Board of Housing, Building and Planning 2008). This support was particularly advantageous for municipal housing companies, who during this time received a universal role of providing housing for all, regardless of income. Consequently, housing politics not only became an essential instrument in the Swedish welfare system, but its configuration also contributed to the emerging dominance of municipal housing companies.

Despite attempts to combat the housing deficit, the demand for housing still exceeded the supply in urban areas in the 1960s. This necessitated the initiation of the so-called Million Homes Program, which aimed to construct one

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1 Today, urbanization in Sweden is said to have reached a saturation point, with about 88 percent of the Swedish population living in urban areas (Statistics Sweden 2022).
million new homes in private and public sectors from the mid-1960s to the mid-1970s (the Swedish National Board of Housing, Building and Planning 2023a). Even though the Million Homes Program is mainly associated with multi-family housing, about one-third of the homes were detached houses. While resulting in a significant increase in the number of new homes, the project has been criticized for being monotonous and deficient in quality. Additionally, the new rentals were often more expensive than older ones, which is why individuals with alternative housing options commonly chose to move elsewhere. This situation created tensions between private and public rentals, as landlords in the former had greater possibilities to select tenants. Moreover, the disparities across different types of tenure and housing increased during this period, as those with means tended to gravitate towards owner-occupied homes, which were made more accessible due to the increased supply and the prevailing economic conditions. However, low-income earners who did not have the means to buy owner-occupied housing or social networks to get older rentals were often constrained in the new rentals.

Thus, the new multi-family homes were mainly inhabited by individuals who lacked alternative housing options. With a segmented housing supply, these trends of gravitation towards different tenure and house types exacerbated residential segregation, with neighborhoods predominantly consisting of multi-family million-homes projects experiencing social isolation. Still today, many of these neighborhoods are associated with residential segregation.

The changes in the economic and political climate in the 1990s had substantial impacts on housing politics. The phasing out of governmental loans and subsidies for housing construction eliminated the previous advantageous treatment of municipal housing companies. Additionally, there was an increased emphasis on economic efficiency, and many municipalities sold parts of, and in some cases all, their housing stock to other rental companies or initiated tenure conversions (the Swedish National Board of Housing, Building and Planning 2008). This resulted in a decline in the share of rentals, which, together with other factors such as low levels of new construction and rapidly increasing prices of owner-occupied housing, aggravated the situation for low-income earners on the housing market (the Swedish National Board of Housing, Building and Planning 2015).

Sweden has not only witnessed a rise in housing prices since the 1990s but also observed a notable increase in residential income segregation, with low—and high-income earners living more segregated. Urban economists have long studied the importance of the physical environment for the spatial arrangements of individuals. The pioneering theoretical work on spatial sorting, developed by Alonso (1964), Mills (1967), and Muth (1969), has been refined to account for factors such as the age of the housing stock (see, e.g., 2 Another important policy implemented during the 1960s was the still prevailing rent-setting system, implying that rents are set through collective negotiations.
Acknowledging that the built environment can influence moving patterns and residential sorting, there have been discussions about how to adjust the structural environment to obtain more diverse neighborhoods, which is typically seen as desirable since segregation can, for example, exacerbate unequal living conditions. Research has shown that the neighborhood in which you grow up can affect adulthood outcomes, such as educational attainment, earnings, and the likelihood of committing a crime (Laliberté 2021; Chetty et al. 2016; Damm and Dustmann 2014). In some Swedish municipalities, there are discussions about demolitions of buildings in socially and economically vulnerable areas to combat residential segregation. Others focus on new housing, particularly how to obtain a more mixed tenure structure, believing it will lead to a more socially diverse neighborhood (the Swedish National Board of Housing, Building and Planning 2023b).

An issue with attempts to lift disadvantaged neighborhoods is that it could cause displacement of the initial residents. Economic upgrading of neighborhoods accompanied by displacement is commonly referred to as gentrification. The term was first mentioned by Ruth Glass in the 1960s when describing trends observed in London. She wrote:

“One by one, many of the working class quarters of London have been invaded by the middle-classes—upper and lower. Shabby, modest mews and cottages—two rooms up and two down—have been taken over, when their leases have expired, and have become elegant, expensive residences. [...] Once this process of ‘gentrification’ starts in a district, it goes on rapidly until all or most of the original working-class occupiers are displaced, and the whole social character of the district is changed.” (Glass 1964, p. xviii-xix)

Today, revitalization and gentrification are common topics in the field of urban economics. In a study about urban decay and revitalization in the United States, Vigdor (2010) suggests that most of the population benefits from neighborhood revitalization. However, since a common policy goal is to revitalize vulnerable neighborhoods, it is vital to understand if there could be gentrification that is beneficial for the incumbent residents and thus without the harmful effects of displacement.

The theoretical model, originally proposed by Alonso (1964), Mills (1967), and Muth (1969), describes the, at the time, prevailing spatial arrangements of households observed in many cities in the United States, where income levels increase with distance from the central business districts. However, this model does not apply to most European cities, where central business districts tend to be wealthier than suburban neighborhoods. In later work, Muth (1973) suggests that the positive correlation between income and distance to the central business district reflects an inverse correlation between distance and the age of buildings in the area. This provides a model of filtering, suggesting that as buildings age and deteriorate, they become cheaper and thus available to individuals with lower incomes.
This thesis addresses contemporary urban challenges in four closely related essays focusing on the Swedish context. Ideally, to comprehend the impact of, for example, new housing on neighborhoods, one would conduct a randomized controlled trial (RCT) where one randomly assigns neighborhoods to treatment and control groups. However, such methods are rarely feasible within urban economics, and in the case of new housing, the location is typically a result of local trends and profitability. Instead, this thesis relies on detailed, full-population register data and quasi-experimental methods to estimate causal effects. The methods applied are described briefly below when introducing the four essays.

The starting point of the first essay is the decline in housing affordability across OECD countries, which particularly affects low-income earners. In addition to policies targeting low-income earners directly to alleviate their housing situation, such as social housing and housing vouchers, there is a belief that an overall increase in the housing supply will benefit all. Essay I investigates whether this is the case.

The belief in the market’s ability to provide housing available for low-income earners is supported by three key arguments, each thoroughly examined using Swedish registry data. This comprehensive dataset covers the entire population and all residences from 1990 to 2017, providing a robust foundation for the analysis. The first argument centers around the vacancy chains generated by new housing. As new housing is built, the individuals moving there create a vacancy in their previous residence, enabling additional moves and generating further vacancies. By studying this chain of moves and how different income groups are represented along the chain, valuable insights into who directly and indirectly benefits from new housing are gained. The analysis reveals that income levels in new housing are about 37 percent higher than the population mean. However, the income level decays along the chain. Although high-income earners (individuals in the fourth income quartile) make up 37 percent of residents in new buildings (step 0) and low-income earners (individuals in the first income quartile) only 18 percent, low-income earners are more than proportionally represented in the second round of vacancies, making up over 25 percent. Thus, despite lower accessibility to new housing, the chains generated open vacancies available for individuals with lower incomes.

The second argument relies on filtering theories, which assume that new housing is primarily constructed for high-income earners. As the buildings age and deteriorate, they gradually filter down the income ladder. Previous empirical work by Rosenthal (2014) reveals that individuals moving into 50-year-old homes typically have incomes approximately 60 percent lower than the initial occupants. Unlike moving chain analyses, which examine short-term effects, filtering models focus on the long-term accessibility of housing. The moving chain analysis indicates that high-income earners are over-represented in new buildings. However, studying the income distribution and
the presence of different income groups over time in residential buildings reveals that, on average, 30-year-old buildings exhibit a proportionate representation of the income quartiles. The total filtering effect, in terms of mean income, is estimated to be around 14 percent in 50 years. The relatively low filtering rate is likely due to the relatively low initial incomes in new housing developments.

The third argument suggests that new housing construction can alleviate market pressures, benefiting individuals across all income groups. This argument is empirically examined by analyzing how the construction rate in the municipality affects both the quality and quantity of housing for individuals across different income quartiles. Improvements in the construction year assess quality, while quantity is measured by housing space per person. This is estimated using a first-difference method, addressing the issue of omitted variable bias stemming from excluding unobserved factors that are constant across years.

Unlike moving chain and filtering analyses, studying changes in the municipal housing stock offers a comprehensive understanding of the benefits of new housing by considering supply changes stemming from new housing and demolitions. The analysis reveals that increased housing construction results in upgrades in the construction year and provides more housing space for individuals across income groups.

A future extension of the analysis could involve studying housing costs, as the housing cost burden likely varies across income groups. While the analysis may show an improvement in housing quality for all income groups, the change in the cost burden might be disproportionate and unequal. This discrepancy could necessitate additional market interventions to address disparities and ensure fair access to housing across different income groups.

Recognizing the positive impact of new housing on the housing situation for low-income earners through trickle-down effects suggests that increasing the supply of new housing, in general, is a viable approach to improving housing conditions for all. This leads to the question of where new housing should be located and whether this matters for the local surroundings. Previous research has delved into the effects of large-scale new housing on neighborhoods, finding, for example, that the construction of affordable housing in low-income neighborhoods can result in a more diverse population (Diamond and McQuade 2019). Due to the suggested importance of the built environment on neighborhood composition, new housing has been considered a policy instrument for revitalizing disadvantaged neighborhoods.

In Essay II, the effects of large-scale new housing in poor urban areas in Sweden are investigated using a stacked regression design, as also used in the following two essays. This method is a variant of the difference-in-difference design, accounting for situations where treatment occurs at different points in time and the effect of treatment evolves over time, under which circumstances a regular difference-in-difference approach may yield biased estimates. The
stacked regression design is among several recently established methods addressing this issue. Although less sophisticated than methods such as Callaway and Sant’Anna (2021) and Sun and Abraham (2020), it offers the advantage of transparency and flexibility in selecting control units for each treated unit. This is particularly important since the location of new housing developments is not arbitrary but rather a result of local trends and characteristics.

New housing in poor neighborhoods leads to about a 15 percent increase in mean disposable income. Drawing from Essay I, new housing tends to be inhabited largely by high-income earners. Interestingly, not only is the income level higher in the new buildings, but there is also an increase in income in the pre-existing housing stock. This raises concerns about displacement. However, the effect on the existing housing stock is of similar magnitude in neighborhoods with a large share of rentals, where displacement is expected to be low.

The argument about low displacement in areas with a high share of rentals builds on the fact that rents are regulated in Sweden. This does not, however, mean that rents cannot be raised. A possible driver of displacement could be that rentals in the neighborhood are renovated in conjunction with new housing, leading to renvictions. However, there are no indications of an increase in renovations or change in the outflow of individuals from neighborhoods experiencing new housing, and thus, there are no signs of displacement.

Essay II concludes that large-scale new housing is a viable strategy for revitalizing disadvantaged neighborhoods. Consequently, new housing has the potential to foster more socioeconomically diverse neighborhoods, which could reduce segregation on a broader scale.

There are several possible reasons why neighborhoods with new housing become more attractive to high-income earners, as suggested in Essay II. Previous research has implied that individuals have preferences for their neighbors (see, e.g., Bayer et al. (2007)). Thus, a change in neighborhood composition could explain the increased inflow of high-income individuals. Another explanation could be that new housing leads to an increase in amenities or a decrease in disamenities. For example, Diamond and McQuade (2019) find that new housing in poor neighborhoods results in lower crime rates, and Li (2021) finds that new housing attracts the opening of new restaurants.

There is plenty of theoretical work describing how amenities can affect moving patterns (see, e.g., Banzhaf and Walsh 2013; Brueckner et al. 1999). Empirical research indicates that neighborhood amenities not only can widen welfare disparities among individuals (Couture et al. 2020; Diamond 2016) but also play a crucial role in influencing residential choices and impacting individuals’ willingness to pay for housing (Couture and Handbury 2020; Bayer et al. 2016). In settings with market-rate housing, neighborhood amenities, and thus attractiveness, are assumed to capitalize on housing prices and rents. In a Swedish context with rent regulation, the capitalization would be primarily reflected in housing prices.
Despite a possible increase in amenities, it is common for residents to oppose new housing. The resistance is particularly pronounced for homeowners, who fear declining property values (see, e.g., Einstein et al. 2020). This decline could be attributed to supply effects or possible disamenities entailed by the new houses. Thus, the impact on prices is theoretically ambiguous. In Essay III, I study the effects of new large-scale housing on housing prices. In low-income neighborhoods, the new buildings lead to an increase in prices, which seems to stem from more expensive or attractive homes being built. High-income neighborhoods, on the other hand, experience a decline in prices in general as well as in the pre-existing housing stock, favoring a supply or disamenity effect. The new large-scale housing in high-income neighborhoods is accompanied by densification, which, if considered a disamenity, could partly explain the observed price decline. Thus, the result suggests that the fear of declining property values is valid in high-income neighborhoods.

In addition to constructing new homes, policymakers have various potential channels to influence residential sorting and spatial inequalities, one of which is by providing neighborhood amenities. This aspect is explored in Essay IV, which investigates the impact of primary schools on neighborhoods by studying school closures. Analyzing closures between 2005 and 2014 in Sweden, the study reveals that school closures lead to a decrease in the share of high-income earners, particularly those with children. This income composition effect is most pronounced in urban areas, while rural areas primarily experience a population decline. Consequently, as these trends align with the pre-existing trends in respective neighborhood types, school closures risk exacerbating existing spatial inequalities.

This thesis contributes to comprehending contemporary urban challenges and how they may be addressed. The thesis enhances understanding of the benefits of new housing, both as a means of increasing the quality and quantity of housing across income groups and as a policy tool to revitalize neighborhoods. Additionally, it elucidates the importance of local amenities in combating spatial inequalities.
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