Long term trends of residential segregation in relation to housing policy in Stockholm

Following indicators of residential segregation over time through spatial analysis

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Abstract

This thesis explores the development of residential segregation over a long time period in Stockholm, Sweden. By following the spatial distribution of two socio-economic indicators and two indicators of housing characteristics between 1930 and 2015, it describes how changing housing policy has affected the indicators. Historic data was gathered and compiled in a longitudinal data base. Spatial analysis of the variables produced results that indicate spatio-temporal variation in all variables, and indicate a central-peripheral pattern that has developed and persisted for long time periods. Variation in spatial distributions of the variables is furthermore connected to changes in undertaken housing policy. Regression models also indicate that the characteristics of residential segregation has arguably been different in different times. The long time period is argued to be important in segregation research because of the longevity of many segregation processes. Following continuous indices of residential segregation over long time periods is important as it may help us understand contemporary trends better, conversely creating better knowledge for policy makers when counter segregation policy is implemented. Long time approaches are, however, lacking the literature, motivating the analysis performed in this thesis.
1. Introduction

There is in politics, as well as in the research community, a prevailing consensus that segregation has a negative impact on the societies where it resides, for example by decreasing social cohesion, which may lead to social unrest (Musterd et al., 2016; Andersson et al., 2007 and Malmberg et al., 2013). In some countries, like the US\(^1\) and South Africa, segregation, specifically along ethnic lines, has been recognized as a societal problem that needs to be counteracted for a long time (Andersson, 2013). In Sweden, concerns of segregation, mainly residential segregation, started to emerge in the wake of a period of intensive construction of housing in the 1960’s and 1970’s, when observed tendencies of increasing levels of residential segregation incentivized the state to formulate policy to counteract it for the first time (Grundström & Molina, 2016). Rising levels of residential segregation was attributed to, among other things, the way that housing policy had been formed in the 1960’s, where new areas were built in monotonous ways both in term of apartment sizes and tenure forms (Boverket, 2008). Since then, levels of residential segregation, along socio-economic as well as ethnic lines, has increased in Swedish cities\(^2\).

Considering that increasing levels of residential segregation started to be observed following a period of intensive construction raises questions of how housing policy affects segregation levels. It also raises questions about how changes in housing policy may affect residential segregation at different times. Swedish housing policy has, as will be described in this thesis, undergone many changes during the 20th century. Segregation, too, has not only intensified, but arguably also changed character from being along economic- and social lines to being more along ethnical lines (Molina & Grundström, 2016). Meanwhile, increasing focus on segregation in research has created better knowledge about the processes that create, and uphold, segregation patterns. In the light of observed increasing segregation levels, the political awareness of segregation as a societal problem has spurred policy makers to increasingly discuss it. Today, segregation and how to counteract it is high on the political agenda (Andersson, 2013). While a complete review of the debates concerning housing and residential segregation, and the ideological differences between different political parties that underlie it, is beyond the scope of this thesis, it is worth noting how opposing political parties often have diametrically different perceptions of what the problem is and why, and, perhaps more importantly, what should be done to counteract observed problems\(^3\).

While studies relating housing policy to segregation patterns in a long term perspective has been done before (see for example Grundström & Molina, 2016), such research often employ a qualitative approach due to, among other reasons, difficulties in obtaining reliable data. According to Andersson et al. (2007), there is currently a lack of quantitative spatio-temporal research on residential segregation. Concomitantly, there is a gap in knowledge of how residential segregation processes develops over long time periods. Similarly, Stjärne et al. (2007) recognize a need for such research. Knowledge of how residential segregation develops over long time periods, they argue, is required if policy is to be effective in counteracting unwanted segregation. The importance of having a long time perspective in policies aiming at doing so has been recognized over the previous decades (see for example Integrationsverket, 2000; Integrationsverket, 2002), and was specifically emphasized by the Swedish minister for energy- and coordination when plans for the policy programmes aiming at reducing residential segregation between 2018-2027 was presented (Regeringskansliet, 2017).

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\(^1\) For an influential example of literature on segregation studies in the US, see Massey, D.S (1994).

\(^2\) Swedish state-led investigations and reports indicating rising residential segregation includes Stadsrådsberedningen, 1989; SOU, 1997; Socialstyrelsen, 2010.

\(^3\) An example of a widely discussed topic related to housing policy in the Swedish political debate is whether the state should regulate rent levels or not. See Motion 2002/03:Bo239, Skräftig fråga 2007/08:1335, Motion 2008/09:C406 & Motion 2016/17:2721 for examples of arguments in the debate.
2. Aim

The context that underlies, and motivates, this thesis is that despite political interference\(^4\), levels of residential segregation has not decreased. On the contrary, they have increased. The understanding of why policies have been unsuccessful in regards to their ambition to reduce levels of residential segregation may perhaps be increased by looking at historical levels of segregation and how housing policy has affected some commonly used indicators of residential segregation in past.

Therefore, the aim of this thesis is two-fold. Firstly, it aims at describing how, and why, Swedish housing policy has changed between 1930 and 2015. This will be done by performing a literature review of official documents, including reports and investigations initiated by the state. Secondly, spatio-temporal analysis over the course of the study period of age structures, mean income levels, apartment sizes and tenure forms in Stockholm will be performed by calculating ratios that indicate difference between different areas. Visualization of the data in maps and graphs will indicate spatial differences at different times, which will in turn be discussed in relation to the policies that have been implemented at different times. Running regression models on mean real income levels will furthermore shed light on how the aforementioned variables has affected the spatial differences in mean real income levels, i.e. the levels of residential segregation along economical lines, in different times, further nuancing the analysis of the effect that policies have had on the spatial distribution of said indicators.

The research questions are;
- How has Swedish housing policy changed during the 20th century and the start of the 21th century?
- How has the spatial distribution of some socio-economic variables and for some characteristics of the housing stock changed over time since the 1930’s, and how can such changes be explained by undertaken housing policy?
- How can the residential segregation along economical lines be explained in different time periods?

\(^4\) Policy programmes include, for example, “Särskilda insatser i utsatta bostadsområden” (Kulturdepartementet, 2018) & “Storstadspropositionen” (Integrationsverket, 2002).
3. Background

3.1 Study area

The study area is delimited to the city of Stockholm. The choice of studying Stockholm specifically was motivated first and foremost by the abundance of data available. It was also motivated by the fact that it is the largest city in Sweden in terms of size as well as in population numbers, making research, perhaps, more comparable to other large cities in Europe as well as in the world. It has also been at the centre of urbanization processes in Sweden during the 20th century, as will be described later in this thesis, making it a relevant study area for the purpose of this thesis.

Figure 1 below shows how the spatial division of the parishes of Stockholm has changed from 1930 until 2015 in broad terms. It is based on a shapefile containing information of parish boundaries from the Swedish church (Svenska kyrkan, 2019).

While Figure 1 shows the change of boundaries for the parishes in Stockholm over time, Figure 2 below visualize the spatial distribution of different areas, as well as what the areas were called in 2015, which is the same as it was in 1980, as boundaries has not been changed since then. The exact timing of the additions of parishes and changes made to existing parishes are presented in table 1 in the Appendix.
Figure 2: Map visualizing the spatial division of Stockholm and the parish boundaries in 2015. 
Data Source: Svenska kyrkan (2019).
3.2 Swedish housing policy in the 20th century and today

In order to discuss the development of the city of Stockholm and the built structure that exists today, a historical summary of the housing market, and the policies associated with it, will be presented below. It is based on historical official documents and academic literature outlining the descriptions and understandings of the housing market, the housing stock and the problems connected to housing at different times during the 20th century. More importantly it will highlight the contemporary descriptions of the situations at different times, and thereby provide a good basis for understanding why policies were formed.

As policies are, in this context, responses aimed at solving perceived problems, it is important to recognize the circumstances persisting at the times of implementation for policies. Therefore, the following section will describe the development of Swedish housing policy, whilst also describing the circumstances that guided policy making over time. Because of the interdependency of different policy branches, such as financial, social and housing policies, where each area affects the others, it is difficult to describe the history of housing policy in detail. However, as this thesis aims at describing, and analyzing, long term changes in residential segregation, it is the major changes in housing policy that is of importance.

3.2.1 Before 1940

During the first world war in the 1910’s, rising construction costs and rent levels caused construction to decrease and living costs to increase, which in turn made many, mostly those who were less affluent, homeless. The state viewed it as a problem that should be solved mainly by market forces (Boverket, 2007). Housing, as far as the state was concerned, was primarily a problem only when related to questions of employment and as a way to stimulate the economy, and the state’s interventions was limited to the construction of housing to prevent housing shortages (Boverket, 2007). Industrialization and centralization, or urbanization, in the 19th century and the start of the 20th century led to housing shortage, accompanied by poor quality and living standards for large shares of the growing populations in the cities (Socialdepartementet, 1945). In the 1920’s, the social consequences of housing, which had an impact on the socio-economic ‘status’ of people, created increasing incentives to express opinions about housing, which concomitantly created political interest (Socialdepartementet, 1945). The political aspect of housing was, however, mainly viewed as a problem related to hygiene and health in cities (Boverket, 2007). It could be said that the state’s perspective on housing policy shifted during the first decades of the 20th century from being concerned only with the construction of housing to avoid housing shortages, to being increasingly concerned with socio-economic problems related to housing, such as the housing standard for all, especially for the less affluent people (Boverket, 2007). The vulnerability of a housing situation where market forces, being disrupted by the first world war, were highlighted by the eviction of many less affluent families, which was arguably a ‘wake-up’ call for the state to intervene and gain a better overview of the housing situation.

Policy related to construction and housing was in the 1920’s concerned mainly with building bigger apartments for families to alleviate the long-standing problem of overcrowded housing, as well as increasing the standard of housing. The focus was furthermore mainly on the rural areas of Sweden. In the cities, the problems were to some degree different to those experienced in the rural areas. Housing shortages had been a growing problem following the first world war. In a time when real income levels for industrial workers had greatly increased during the previous decade5 it would seem to have been

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5 Overall real income levels, i.e. income levels controlled for inflation, were 40 % higher at the end of the 1920’s compared to income levels before the first world war (Socialdepartementet, 1945, p. 50).
favorable conditions for constructing new housing as well as improving housing standards (Socialdepartementet, 1945). However, rising rent levels and construction costs hampered this development. Among other causes for the rising rent levels were the underlying assumption that people overpay for what is ‘new’, as is argued in the report - “[Overpaying] should not be considered unusual [and] when prices are free, the market is willing to pay a price for modernity itself” (Socialdepartementet, 1945, p. 157). Rents were furthermore regulated ‘temporarily’ to some degree following a proposition from 1917 as a way of reducing the potential dramatic increases in rent levels from housing built before and after the first world war (Motion 1922:312). In essence, the regulation gave the state, represented in separate counsels in the bigger cities, the right to deny claims of increased rents from landlords. The regulations were done through tying rent levels to costs of production as well as costs of maintenance, which gave a fixed level of rent that could not be exceeded because more affluent people were willing to pay more, unless the state gave consent (Socialdepartementet, 1945). It gave the state a way to push rent levels down when market forces pushed rents up through increased demand from more affluent people. Politics could have aimed at reducing housing costs for specific types of housing more through subsidies and increased central control, which in turn could have lowered rent levels. However, the counter argument to that was that it would have required organizational changes that were time- and cost consuming, as well as being derogatory of the free market and the public opinion (Socialdepartementet, 1945).

While the pace of construction of housing increased, it did not match the needs of the growing urban population. Forecasts of how much housing needed to be constructed beyond the 1930’s was based on ‘statistical assumptions’ conceived before the war, and did not take into account the changes in demographic structure. The assumptions were based on data from 78 cities, including Stockholm, which indicated that the amount of housing had increased by 12.5 percent, and the population had grown by 13 percent from 1912 to 1920. While seemingly balanced, increasing numbers of families that needed bigger apartments created a housing shortage, as the existing housing stock could not accommodate the population (Socialdepartementet, 1945). Therefore, much of the subsidies required a minimum size of 2 rooms and a kitchen to be applicable, which created incentives to build for the increasing amount of families moving into the cities. Alongside this, however, the demand for smaller, newly built modern apartments were higher than for bigger apartments. Also, the older parts of the population, i.e. the retirees, generally lived in housing of poor quality. This was politically problematic, as newly built apartments for them to move in to were generally outside of their economical reach, as smaller apartments were, as mentioned, attractive for the affluent parts of the population that wanted modern apartments. Therefore, a specific financial support was given to retirees in such positions which were to be used to help them move into better-equipped and more modern apartments (Socialdepartementet, 1945). As housing policy at the time mainly focused on increasing the size of apartments in order to accommodate families and reduce overcrowding, building small apartments for retirees were in a way counterproductive, which meant that in some cases renovation and using the small apartments that were in acceptable physical condition were sometimes reserved for retirees. The specific difficulties of providing new housing for the aged population that generally were economically weak led to a separate state funded investigation of the housing situation for retirees (see Socialdepartementet, 1949a). It found that retirees almost exclusively lived in housing with two rooms and a kitchen or less, and drew a conclusion that the fact that retirees generally lived in apartments with lower rent than the rest of the population was to be attributed to the poorer quality of their housing, and the fact that retirees were less affluent than a large share of the population (Socialdepartementet, 1949a).

In Stockholm, the share of the total housing stock that was vacant was 0.2 percent in total, and 0.1 percent in the inner city, which indicates the severity of the housing shortage (Socialdepartementet, 1945). In the

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6 Translated from the original Swedish - “Det torde icke vara något ovanligt drag hos den fria prissbildningen, att marknaden är villig att betala ett pris för själva moderniteten” (Socialdepartementet, 1945).
1930’s, the housing shortage, as well as high shares of unemployment because of a global economic recession, was to be solved primarily by increasing the subsidies for construction, which would create employment as well as alleviating the housing shortage (Socialdepartementet, 1945).

Housing policy in the second half of the 1930’s was characterized by attempts to decrease overcrowding in housing as well as increasing the monitoring of the housing market to better be able to forecast demand in the future. With the increasing amount of families with many members living in the same household, the quality of larger apartments was argued to be a major problem. It was furthermore primarily not a question of people that were less affluent, and thereby could not afford to move to housing of higher quality, but rather a question of size, where families could not move because there were no appropriately sized apartments available to them (Socialdepartementet, 1945). The political measures introduced in the early 1930’s, combined with a turn-around of the economic recession, had resulted in a situation where housing shortage had almost reached the point of surplus, i.e. a situation with less demand than available housing (Boverket, 2008). In the following years, the second world war would almost completely stop construction, which had major repercussions on the housing market, and concomitantly on how housing policy was formed (Boverket, 2008).

3.2.2 Housing policy during the second world war - 1939 - 1945

The second world war introduced new problems related to housing policy. In the early 1940’s, high interest rates for loans and stricter financial politics with less capital being allocated to the construction sector posed several problems. The major concerns included that of keeping rent levels down in newly produced housing despite the high interest rates for loans, while also keeping the pace of construction up, as that was needed to meet the demand of a growing urban population (Boverket, 2007). Considering the importance of the construction sector during the previous decades not only for revitalizing the housing stock in terms of quality and size, but also as a way of keeping unemployment low, the speculative and volatile situation during the second world war was problematic (Socialdepartementet, 1945). Sweden faced a potential acute housing shortage, and indications of rapidly increasing rents in an unregulated rental market, with an increase of 1.5 percent during the first months after the second world war outbreak, demanded state intervention in the housing policy (Socialdepartementet, 1945). Instead of regulating rents, which was arguably seen as a ‘last resort’-solution to be used if the severity of the problem increased, loans with low rent levels and less strict conditions, as well as options of delayed amortization, were introduced. In a way, it meant that the state overtook the risks related to loans from the individuals, which was perhaps not favorable, but arguably required considering the looming threat of a complete collapse of the construction sector (Socialdepartementet, 1945).

During the first year of the second world war, it became apparent that the construction crisis needed to be attacked not only by making loans more favorable for individuals, but also by making larger, structural changes (SOU, Socialdepartementet). The expertise at the time argued that the core problem for the construction sector was that of providing the market with a sufficient influx of new housing related to rising population numbers within the same price-range as similar apartments in the existing housing stock (SOU, Socialdepartementet). Sharply increased rent levels due to increased construction costs was not an alternative, nor was a situation where construction slowed down and thus would not meet the demand. Reducing quality in order to reduce construction costs was not an option either, as that would have potentially risked the future housing stock to be in acute need of renovation (SOU, Socialdepartementet). A major concern was that implementation of rental subsidies on new apartments would risk favoring some population groups over others, which could eventually create a separate segment of the housing market over time, as the ‘new’ housing stock would differ from the existing housing stock. The solution, although temporary, was rental controls, i.e. monitoring and regulation of rent levels on existing as well as newly constructed housing, which was implemented for a limited time in 1942 (SOU, Socialdepartementet). It aimed at, over time, ‘introducing’ new housing into the housing stock without
causing different rent levels to destabilize the market (Socialdepartementet, 1945). The implementation, as well as the reasoning behind it, was in many ways similar to the rent regulations implemented in 1917 (Motion 1922:312), as the regulations meant, in short, that all apartments were assigned a ‘base rent’ which could not be exceeded without the consent of the government, which would make it possible to keep rents down (Bentzel et al., 1963). The political interventions in the start of the 1940’s could be summarized as including primarily increased state subsidies and loans to support the construction sector combined with temporary ‘loosened’ restrictions on amortization and loans for private person and reduced interest rates (Socialdepartementet, 1945).

The state’s interventions in Swedish housing policy during the second world war was characterized by the temporarily powerful immediate intervention of the state, which was in turn a response to the dramatic changes to national as well as international politics due to the second world war. But it was also, arguably, in these years that housing policy became more ‘general’, and started to include many of the elements that would influence Swedish housing policy in the future (Boverket, 2007). Following the experiences of the complex problems faced in the 1940’s and how volatile the housing market and construction sector was in the early 1940’s, many separate investigations were to be carried out in the following years. Examples of these were the investigation of retiree’s housing situation (Socialdepartementet, 1949a) and an investigation of how housing policy can affect demand and accessibility, and how demographic changes and changing economic conditions may affect the two (Socialdepartementet, 1949b). Removing the rent regulations initiated in 1942 and moving back to a system where rents were controlled by market forces were also argued to be possible only if it was done in conjunction with changes to financial- and social policy reforms, such as, for example, building out the redistribution system to make newly built apartments available to larger shares of the population than just the more affluent (Bentzel et al., 1963). The interdependency between different lines of policy were becoming increasingly apparent.

In the following decades, a shift to housing policy guided by other norms than before, with a heavy focus on the importance of housing for the individual's life chances as well as for social cohesion in society, would take place. Following the early 20th century, characterized by a rising interest of housing as not only a question of construction to meet housing demand, but also a question of social importance for society as a whole, and the war time, characterized by an increasing level of state intervention in regulating the housing sector, the ‘Swedish model’, often referred to as ‘Folkhemmet’ (eng; ‘The people’s home’) would emerge. It would become a model for housing policy for several decades to come (Grundström & Molina, 2016), and housing policy would in the 1950’s and 1960’s be closely related to what was called ‘family policy’ (Boverket, 2007).

3.2.3 A new political perspective on housing - 1945 - 1965
The importance of the construction sector, and the housing sector, had been recognized during the second world war, i.e. in the 1940’s. While housing policy in the cities had previously been characterized by emergency measures in times of crisis, while otherwise being left to be regulated by market forces, it would now come to be part of the Swedish welfare policy (Boverket, 2007). The shortcomings of the free market in terms of self-regulating the market and adapting to changing political conditions paved the way for the state, which had before the second world war had limited involvement in the housing market, to increasingly become involved (Boverket, 2007). In a state funded investigation from two decades later, it was noted that “...the aim [of housing policy] under pressure of crisis [i.e. the second world war] has expanded from concerning socially motivated [financial] support for certain groups...[to] being a general regulation of the housing market as a whole with the purpose of countering housing shortage and to influence overall rent levels” (Inrikesdepartementet, 1965, p. 24).
The major problems for policy makers in the years, and decades, following the second world war, i.e. from the second half of the 1940’s, were formulated to be that of meeting the demand of new, modern housing that sprung from demographic changes, urbanization and structural, social changes such as more, smaller families moving into the cities (Boverket, 2007). It was also argued to be important to reduce the differences in housing quality between rural areas and the cities (Inrikesdepartementet, 1965). Reducing overcrowding, with the guiding principle being that not more than two persons should live in single room apartments, had been hampered by the dysfunctional relationship between low income and high rent levels during the first half of the 1940’s as a result of the war (Inrikesdepartementet, 1965). Building, in the following decades, would therefore primarily be focused on building apartments with 2 rooms and a kitchen, and secondly on building apartments with 3 rooms and a kitchen. The aim was to ‘solve’ housing shortages before the 1950’s by building 45 000 - 50 000 apartments in cities per year (Boverket, 2007). Because of the low preparedness and insufficient expropriations, the expansion of the housing stock would take place on state-owned land in the peripheries of cities (Boverket, 2007).

In the 1950’s, alongside the construction of new housing, more restrictions were put on state funded loans for constructing. For example, the planning of new housing had to be disposed in a way that allowed for “...furnishing in an appropriate way” (Inrikesdepartementet, 1965, p. 26), and a threshold for minimum measurement in square meters were set for rooms, which varied depending on the function of the room (Inrikesdepartementet, 1965). In the beginning of the 1960’s, differences in quality between rural areas and cities were still apparent, but it was not seen as a major problem as the urbanization that had been thought to be limited to the 1940’s had continued with full force, which was argued to in turn lead to less densely populated rural areas where people could live in the apartments that were of ‘good’ quality (Inrikesdepartementet, 1965). The movement of people itself would, in other words, take care of the observed differences.

Increasing real wages for families in the 1950’s caused the demand for bigger high quality apartments with modern equipment to increase, which would lead to what has later been known as ‘Miljonprogrammet’ (eng: the Million Homes programme, from here on called the MHP) (Inrikesdepartementet, 1965).

3.2.4 The Million Homes programme - 1965 - 1975
The long-term goal of building a million new apartments between 1965 and 1974 was in itself arguably simply a continuation of the ongoing ambition to eradicate housing shortage by constructing new apartments (Boverket, 2007). Having a fixed amount of apartments to be constructed in a specific time period had been done already in the 1940’s (Boverket, 2007). However, accompanying the MHP-project, structural changes would be implemented too. For example, deductions on interest rates for loans taken by individuals was implemented to allow for people to move to new apartments (Inrikesdepartementet, 1965). The aim of the MHP was described in a proposition as “The society’s aim regarding supply of housing should be that the entire population should have access to good, spacious, well planned and well equipped housing of good quality for reasonable cost” (Prop. 1967:100). The MHP was furthermore mainly targeting cities with growing enterprise businesses (Boverket, 2008). Arguably, this indicated an increasing recognition of housing as a vital part of individual’s lives.

To succeed with the ambition of constructing enough to meet demand and increase the overall quality of housing, the state strengthened the municipalities ability to allocate land to build on, and encouraged them to build large projects with ‘industrial methods’ (Boverket, 2008). The main actors when it came to carry out the construction, and later to perform maintenance, were municipally controlled housing enterprises, together with housing corporations and public housing enterprises (Boverket, 2008). A third of the

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7 Figure 19 in the Appendix indicates the increasing population numbers in peripheral areas, i.e. ‘Västerort’ and ‘Söderort’, compared to the more centrally located areas, i.e. ‘Innerstan’, ‘Kungsholmsområdet’ and ‘Södermalm’.
housing that was built during the MHP was multi-family houses, which made the municipalities dominate the housing market on a national level when it came to multi-family housing (Boverket, 2008).

In the beginning of the 1970’s, the housing shortage was turning into a housing surplus, as the demand from younger households had been satisfied, combined with the fact that construction required less workers, leading to a reduction in work-related migration (Boverket, 2008). The urbanization had also slowed down, which further contributed to turning housing shortage into surplus (SOU, 1997), which led to a situation where high shares of newly built housing in multi-family housing were vacant in some municipalities and areas towards the middle of the 1970’s. Virtually all of the funds to construct the houses had been provided from the state, but when it came to maintaining the houses, municipalities, and the housing enterprises, required incomes from rents as they were responsible for funding this ‘second phase’ of the MHP. As large parts of the new houses were vacant, the incomes were not high enough to cover the costs of properly maintaining the housing stock (Boverket, 2008). The high degree of vacancy led to a drastic decrease of construction of multi-family housing. However, small houses were still being constructed, and combined with high inflation\(^8\), relatively low tax levels and favourable subsidies for buying houses, families, not least those that had recently moved into newly constructed multi-family houses, became increasingly interested in buying houses instead of living in rentals (Boverket, 2008).

The industrial way of building, which had been promoted by the state, had created areas that were criticized for being monotonous. They soon came to be populated mainly by people with lower socio-economic resources, while people who had the economic means in many cases moved to other areas (Boverket, 2008). In a state-led investigation in 1974, the focus was, following the critique, mainly on democratic housing and the importance of the areas outside of the housing, which were argued to influenced the opportunities that individuals had to build a social network (Bostadsdepartementet, 1974). Indications of increasing ethnic and social segregation where less affluent and socio-economically weak groups lived in areas built up during the MHP were recognized as problematic, and the importance of making areas equal in terms of service and available housing types was pronounced (Bostadsdepartementet, 1974). Different forms of segregation that intertwined, such as increasing age segregation, and economic segregation, were driven by the fact that larger apartments were built mainly in smaller houses that were usually sold and owned by the tenant, whilst smaller apartments were primarily available in multi-family housing. As the types of tenure and sizes varied in areas, the population living in areas were segmented (Bostadsdepartementet, 1974). The perceived risk of increasing segregation was that uneven use of service and isolation of groups, which in a longer time perspective could lead to negative attitudes and lack of understanding of other groups, causing social unrest (Bostadsdepartementet, 1975). It was from this perspective that the aim of ‘allsidig hushållssammansättning’ (eng: socially mixed housing) was conceived in Swedish housing policy (Boverket, 2008). Alongside the recognition of a need for more equal socio-economic circumstances, the importance of other policy areas than the housing area, such as redistributive policies, were argued to be important to counteract segregation tendencies (Bostadsdepartementet, 1975).

3.2.5 A start of an ideological shift in housing policy - 1975 - 1990

After having been focused on rapidly constructing housing, municipalities and housing enterprises governed by the municipalities had to undergo a shift to maintaining the housing stock (Boverket, 2008). Meeting the tenant’s demands were problematic because of a lack of structure in the way that the municipalities worked, and they were criticized for being ineffective and having high costs (Boverket, 2008). The poor planning of how to maintain the newly built areas would later be argued to have been a key contributor to why the MHP led to increasing levels of residential segregation (SOU, 1997). After having been organized as centralized project and monitored by the municipalities in the construction

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\(^8\) See Figure 18 in Appendix.
‘phase’ of the MHP, the second half of the 1970’s and the 1980’s were characterized by decentralization and increasing cost efficiency, as well as building more mixed in terms of apartment sizes and forms of tenancy than before, for the housing enterprises (Boverket, 2008).

The urbanization trend that had been ongoing during the previous decades had slowed down in the 1980’s, and a reversed trend motivated by environmental motives, ‘the green wave’, started (Boverket, 2007). Combined with the oil crisis in 19739 which drastically increased energy and productions costs, uncertainty of future development, as well as forecasting future housing demand was difficult (Boverket, 2007).

The traditional problems of the past, i.e. overcrowding, poor quality and housing shortage, were towards the end of the 1980’s arguably ‘solved’ (Boverket, 2007). Increasingly, the question of social segregation took their place on as problems high up on the political agenda (Boverket, 2007). The freedom of choice that the MHP had brought had been exercised by families living in newly built multi-family houses, who had relocated to privately owned houses while less affluent people who lacked the capital to make an initial deposit and buy a house were ‘forced’ to live in MHP areas (Boverket, 2007). Groups that moved to the MHP areas shared other socio-economic characteristics than being relatively economically weaker than other groups, such as to a high degree living on social grants and originating from other countries than Sweden (Stadsrådsberedningen, 1989). The tenants expressed feelings of insecurity in the MHP areas, as well as being concerned with the spatial, and social, isolation from other groups, and criticized the monotonous, esthetically poorly constructed areas (Stadsrådsberedningen, 1989). Political interventions that aimed at revitalizing areas where these socio-economically ‘weak’ groups lived were argued to be necessary in order to counteract the tendencies of increasing residential segregation (Stadsrådsberedningen, 1989). Larger structural changes were also argued to be important, such as increasing the access to higher education and providing good physical infrastructure (Stadsrådsberedningen, 1989).

3.2.6 The 1990’s – creating a more liberal housing policy
Drastic changes were implemented in housing policy in the 1990’s. Following a change of government in 1991, a liberal administration led by Moderaterna took power from the left-wing administration led by the Social democrats that had been in power for several decades. Along with the change of government, the ideology guiding housing policy changed (Boverket, 2008). State subsidies and loans, for example in the form of interest deduction for less affluent people, were limited, and in some cases removed, in order make the housing market more liberal. Along with such changes, the municipalities lost the privileges, such as, for example, state-financed subsidies on construction of new housing, that they had obtained under the previous government, and municipality owned housing enterprises controlling large shares of the housing market would from now compete on equal terms with private housing companies (Boverket, 2008).

The liberal changes in housing policy aimed at moving the financial risk-taking, which had been a guiding principle at the core of the housing policy run by the previous government, from the state to the private companies and individuals (Boverket, 2008). However, the liberal reformation of the housing market occurred in a time of economic recession. Unemployment was on the rise, and low inflation accompanied with rising interest rates on loans made the cut-down on state-financed subsidies had severe consequences on the construction sector, leading to a halt of construction of new housing, which reached very low levels, in an international as well as a national context (Boverket, 2008). Simultaneously, a major tax reform that reduced taxes for people in order to increase disposable income levels, which was funded to a large degree by increasing taxes from the housing sector, which further decreased the low cost

9 Reading suggestions for more information about the oil crisis, see Garavini (2011) & Mitchell (2010).
construction levels (Boverket, 2008). In light of the liberal reforms, municipalities, and their housing enterprises, were increasingly acting as private companies and started to sell parts of their housing stock, i.e. housing that were constructed for the ‘public good’ in the MHP-era, in order to generate profit, as well as getting rid of the responsibility when it came to providing service and maintenance (Boverket, 2008).

In 1996, the Social democrats regained power and formed a government, but the large-scale liberal restructuring of the housing market were not reverted (Boverket, 2008). The critique against the MHP, specifically the role it had had in increasing residential segregation levels by having built up monotonous areas in an ‘industrial’ way (see for example Boverket, 2008 and Bostadsdepartementet, 1974) led to a recognition of the importance of building more attractive areas, especially in the outside areas, i.e. the living space outside of the home (Inrikesdepartementet, 1996). Contemporary problems such as residential segregation along different socio-economic lines, poor service and availability for socio-economically ‘weak’ areas and high costs of living had taken the place as the primary problems that needed to be solved by politics (Inrikesdepartementet, 1996). Arguing that problems such as unemployment and a lack of cultural belonging for individuals could not be eradicated through construction, a state-led proposition in the second half of the 1990’s argued that, similar to what had already been recognized in the 1980’s (Boverket, 2007), housing policy needed to be concerned with the social aspect of living conditions, rather than construction (Inrikesdepartementet, 1996; Kulturdepartementet, 2018). Thus, policies targeting rising residential segregation were implemented.

3.2.7 The end of the 1990’s and forward – new policies to deal with segregation

In 1995, eight municipalities with ‘big’ cities, including Stockholm, received funds that aimed at increasing employment rates for people living in socio-economically ‘weak’ areas, in a policy programme labelled “Särskilda insatser i utsatta bostadsområden”10 (eng: Specific interventions in socially vulnerable residential areas) (Kulturdepartementet, 2018). The programme would run over the course of 4 years, ending in 1999 (Integrationsverket, 2000). While the policy was motivated by the trend of increasing residential segregation, especially along ethnic lines, because of the increased share of immigrants that moved in during the 1980’s and 1990’s, it did not target residential segregation per sé (Integrationsverket, 2000). While the primary aim was to increase employment rates for immigrants, the policy also aimed at increasing local participation in political decisions, as well as improving the connection between different institutions, and the citizens (Integrationsverket, 2000). The long term perspective was emphasized, especially in improving cooperation between different actors. However, because the areas were given the freedom to allocate the funds received from the policy in whichever way they found suited their specific situation best, the policy did not have the positive effect that had been hoped for. The prioritization of funds for different purposes were widely different, and local initiatives and suggestions from tenants in the areas were rarely considered in the allocation process. The policy did not reach the highly set goal of breaking the trend of increasing segregation. Among other reasons, the ‘failure’ of the policy was attributed to the vague formulations that generally did not indicate what the practical actions to achieve the goals would be (Integraionsverket, 2000). The interpretation of the way that the policy would be carried out was thus left for the individual municipalities to do, which made it unclear for the municipalities to know how they were supposed to implement the policy (Integrationsverket, 2000).

In 1998, a new structure of politics was introduced in the ‘big’ Swedish cities in a proposition called “Storstads propositionen” (Integrationsverket, 2002). The policy would run for several years, ending in different years, i.e. 2003, 2004 or 2005, in different areas (Integrationsverket, 2002). The proposition, in general, described the importance of cities, and highlighted the specific social, economic and cultural circumstances that cities contained (prop 1997/98:165). In the proposition, it was argued that creation of

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10 Later, the policy has often been referred to as “Blommansatsningen” or “Blommanpengarna”.
jobs and sustainable development, as well as economic growth, was dependent on adjusting politics to the specific conditions of the cities, which in turn created a need to formulate policy specifically for the cities, and not for all regions on a national level. While an entire description of the policy is beyond the scope of this thesis because of the extensive changes that were proposed, the primary objectives of the restructuring was to eradicate the residential segregation along social and ethnic lines that had been developing for the previous decades and to make the cities more equal between groups, for example between groups of different ethnicity and between men and women (prop 1997/98:165). Seven municipalities, and more specifically twenty four specific areas, all of which had been targeted by the “Specific internations in socially vulnerable residential areas”-policy, were targeted by ‘Storstadspropositionen’ (Integrationsverket, 2000).

Individuals living in specific areas, i.e. socio-economically ‘weak’ areas, were targeted by efforts that aimed at, in different ways, increasing their conditions. However, the aim of the political programme was arguably contradictory in regard to the counter-segregation element to it. The policy was in nature area-based, i.e. focusing on specific areas, but at the same time, it targeted individuals, neglecting the fact that the efforts aimed at individuals does not necessarily materialize in an improvement to the area per sé, as individuals may move in, or out, of the areas (Integrationsverket, 2002).

In analyzing the outcome of the policy, Integrationsverket (2002) noted that the local participation and the focus on establishing structures that would focus on long term development, which were similar aims as in the previous policy programme, were not sufficiently worked with. In most cases, local political interventions were seen as experiments or projects, rather than steps leading towards a clear goal. Furthermore, the interventions were often characterized by being dependent on large amounts of funding, further strengthening the perception of it being a ‘project’ rather than a long-term, sustainable policy (Integrationsverket, 2002).

Between 2008 and 2010, the state funds that had been distributed to municipalities to support project-based interventions to reduce segregation were removed (Kulturdepartementet, 2018). Instead, funds would focus on strengthening the connection between different policy areas. Education, employment rates and security were the three main policy areas targeted by these funds. Between 2012 and 2014, the number of targeted areas, i.e. areas that according to some indicators, including a high share of people living on social benefits, low education levels and low employment rates, was reduced. Increasingly, the focus was argued to be on intersectoral political intervention that targeted larger structures in the areas, which would in turn improve the socio-economic conditions within them. A sort of performance-based payment was formulated, where areas that could prove that they achieved ‘good results’ were given additional funds, which would give areas further incentive to change the socio-economic conditions (Kulturdepartementet, 2018).

The reforms that has aimed at reducing segregation during the second half of the 1990’s and in the previous two decades are largely to be regarded as failures, according to the Swedish minister for energy and coordination (Regeringskansliet, 2017). Major reasons for this, he argues, has been the narrow time perspective, where short-term solutions are expected to solve long-term problems, belated political intervention and poor communication between the actors responsible of carrying out the policies and distribute the funds allocated to them (Regeringskansliet, 2017). Therefore, future policy to counter segregation will run between 2018 and 2027, i.e. having a longer time period than previous policies (Kulturdepartementet, 2018). While it will in essence be similar to previous policies in that it will target areas with socio-economic ‘challenges’, more general investments aiming at reducing segregation levels

12 The specific areas in Stockholm that was located in Enskede, Skärholmen, Kista and Spånga (Integrationsverket, 2002, p. 28).
will be carried out. An example is the ‘Välfärdsmiljarderna’\(^{13}\), which distributes funds according to how many asylum seekers each municipality has registered since 2014 (Promemoria 2019/1:4).

## 4. Previous studies

The previous section outlined the development of Swedish housing policy in the 20\(^{th}\) century, and the circumstances that led to political interventions in different times. In this section, previous research on segregation will be presented, as well as how segregation has been defined in the literature. This will later be discussed in relation to the results of the spatio-temporal analysis performed on the indicators of residential segregation, and to the the political context presented in the previous section.

### 4.1 Definitions of segregation

To analyze why political intervention is needed at different times, it is important to know the circumstances that lead to the conclusion that policy needs to be changed, or created. The review presented in the previous chapter provides information of how housing policy changed over time, as responses to the different problems faced at different times. However, I argue that it is also important to recognize semantic differences in definitions of the term segregation over time, and, perhaps more importantly, between the research community and governmental bodies. Evaluating policy that has aimed at counteracting segregation rests on an assumption of what is actually being evaluated. Depending on how segregation is defined, the effect of policies may be interpreted differently. Therefore, some different definitions of segregation will be presented below.

#### 4.1.1 Definitions in official documents

While the term segregation, to the authors knowledge, was not used before the 1970’s, descriptions of situations that can be likened to what is today called segregation was presented already in the 1940’s, where notions of ‘slums’, and ‘slum-creation’ as an emerging problem in especially the bigger cities were mentioned as an emerging problem related to housing policy (Socialdepartementet, 1945).

In 1975, segregation was acknowledged as a societal problem that demanded political measures to counteract and prevent in a public investigation carried out by the Swedish state (Grundström & Molina, 2016). In the investigation, residential segregation was defined as “...[when] there are obvious differences between geographical housing areas in terms of the population’s composition”\(^{14}\) (Bostadsdepartementet, 1975, p. 21). Already then, the relational nature of segregation was acknowledged as an important aspect of segregation. Effects of segregation in more affluent areas, too, was argued to be important to recognize, as such effects had previously not been studied sufficiently compared to the mostly negative effects observed in less affluent areas. In a report two decades later, again aiming at providing a basis of knowledge to base future counter segregation policy on, the difficulty of defining ‘segregation’ was highlighted (Socialdepartementet, 1997). More than being the separation of populations along socio-economic and ethnic lines, it was argued to be multi-dimensional, where spatial separation should also be seen as a “...manifestation of social distance between different population groups” (Socialdepartementet, 1997, p. 23). Having a holistic perspective when researching segregation, and creating policy to counter segregation, was argued to be crucial (Socialdepartementet, 1997). Similarly, in the proposition outlining the ‘Storstadspolitik’-policy in 1998, the different types of segregation were argued to often be present simultaneously (prop 1997/98:165).

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\(^{13}\) The exact sum of money given to each targeted municipality is presented in Promemoria 2019/1:4.

\(^{14}\) Translated from the original Swedish: “Bostadssegregation innebär att det finns påtagliga skillnader mellan olika bostadsområden I fråga om befolkningens sammansättning” (Bostadsdepartementet, 1975, p. 21).
Swedish Statistics defines residential segregation as “[the] spatial separation between individuals” (Statistics Sweden, 2008, p. 51), where the separation can be measured between individuals based on different socio-economic indicators such as income-, type of work-, gender or ethnicity. Socialstyrelsen (2010, p. 178), i.e. the National Board of Health and Welfare, defined it as “…differences between different groups geographical pattern of settlement”15. in 2010. Segregation was argued to be a ‘snapshot’ of the situation at a certain point in time, while segregation processes describes the processes that led to that ‘snapshot’. Segregation is furthermore argued to be the opposite to integration, where segregation is perceived as a negative state, and integration represents a positive phenomenon (Socialstyrelsen, 2010). The Swedish government defines it in a similar way in 2018, writing that “Segregation is when some parts of the population are separated from others” (Kulturdepartementet, 2018, p. 9), and that the term segregation includes the processes and the dynamics that shape and upholds differences between groups (Kulturdepartementet, 2018).

4.1.2 Definitions in the research community
Andersson et al. (2007, p.9) defines segregation as separation. Residential segregation, they continue, refers to “…spatial separation of categories [that] the analyst needs to define” (Andersson et al., 2007, p.9). For researchers, studying residential segregation usually refers to the studying of variations in distributions of populations with different characteristics, such as clustering and scattering patterns (Andersson, et al., 2007). The role of the analyst, i.e. who is analyzing and for what purpose, is also highlighted by Stjärne et al. (2007, p. 155), who argue that segregation refers to separation, and that residential segregation refers to “…[when] groups of people live separated, where categories and divisions [of groups] are generally based on some form economic resource, ethnicity or age.”. The level of residential segregation, they continue, could be argued to be the level of dissimilarity between geographically delimited areas.

In the international context, a commonly referred to definition is provided by Massey & Denton (1988, p. 282), who define residential segregation as “…the degree to which two or more groups live separately from one another, in different parts of the urban environment.”. Defining the term from a ‘measurement perspective’, Scarpa (2015, p. 906) writes that “[Segregation] refers to the distribution of the individuals in a population across mutually exclusive groups (e.g. neighbourhoods of residence) in relation to an individual property (e.g. income).”. He continues by arguing that segregation as a concept is closely related to inequality, but that it, unlike inequality, explains possible spatial clustering and formation of groups, while inequality explains the distribution of a property, e.g. income, within a population (Scarpa, 2015).

4.2 Segregation research
4.2.1 Segregation research in the Swedish context
There are arguably three types of segregation that dominate contemporary segregation research; demographic segregation, socio-economic segregation and ethnic segregation (Andersson et al., 2007). The first refers to segregation based on variables such as age and gender, the second to variables referring to ‘class’, such as income levels, and the latter to segregation based on variables such as ethnicity and religion. As is argued by Andersson et al. (2007), Stjärne et al. (2007), as well as in official reports, for example Socialdepartementet (1997), different types of segregation are not mutually exclusive. The opposite is arguably true, where one type of segregation generally implies that there are more forms of segregation.

15 Translated from the original Swedish: “…skillnader mellan olika befolkningsgruppers geografiska bosättningsmönster” (Socialstyrelsen, 2010, p. 178).
In a Swedish context, the attention on studying segregation has increased since the 1980’s, when rising levels of residential segregation was observed and related to, among other factors, the way that new housing areas had been built (Socialdepartementet, 1997). Similarly, research on residential segregation in Sweden has argued that the increasing levels of segregation in the decades following the MHP-project, i.e. in the 1980’s and 1990’s, could to a high degree be attributed to the physical structures built in the MHP-project in the 1960’s and 1970’s (Vogel, 1992). Individuals living in the rental apartments that were built in peripheral areas of the cities face long travel times compared to people living in more central areas, and the physical distance, combined with the MHP-house’s increasing need for renovation, accentuates the low socio-economic levels of them (Vogel, 1992). Andersson et al. (2009), too, argue that the physical structures built in the MHP-project has contributed to increasing levels of residential segregation. They note that while the MHP was a response to the problem of potential acute housing crisis following the second world war, it was implemented in a time when Swedish cities were, and had been, characterized by relatively small differences in disposable incomes (Andersson et al., 2009). In the three biggest metropolitan areas of Sweden, i.e. Malmö, Gothenburg and Stockholm, increased residential segregation manifested in areas where low income levels, ethnicity and form of housing coincide has been rising for the previous two decades (Grundström & Molina, 2016).

The residential segregation has furthermore not only intensified over time. It has also changed character from being driven by socio-economic factors to increasingly being driven by racial and ethnic patterns (Grundström & Molina, 2016). During the 21th century, much of the literature on segregation in Sweden has been concerned with residential segregation along ethnic lines. For example, ethnic segregation has been studied in relation to social unrest by Malmberg et al. (2013), who argue that high levels of residential segregation along ethnic lines may lead to social unrest, measured in the amount of car-burnings. Their findings, they argue, indicate that social and spatial marginalization, i.e. segregation, is an influential factor when researching the geography of urban unrest. While ethnic segregation is generally studied as a form of residential segregation, Marciniczak et al. (2015) argue that residential segregation correlates with workplace segregation. Residential segregation levels, along ethnic lines, they argue, were higher than workplace segregation in the Stockholm area, and the results indicated that residential segregation stretches not only to the area where a person lives, but also to other domains of life, such as social networks and workplace segregation (Marciniczak et al., 2015).

4.2.2 Segregation research in an international context

In an international context, segregation levels have been rising for the previous decades (Musterd et al., 2016). While the formulations of the potential negative effects are similar between international studies and Swedish studies, i.e. that it is a threat to social cohesion (see for example Musterd et al., 2016 and Andersson et al., 2007), segregation is to a high degree dependent on place-specific factors (Musterd, 2016). Different histories and contemporary settings in terms of, for example, political leadership and social norms, make comparison between countries difficult (Musterd, 2016). However, summarizing knowledge from different countries and parts of the world, which potentially would generate additional knowledge to how segregation processes work in different settings, have not been done, according to Musterd (2016). By attempting to draw conclusions based on research from different countries, he concluded that segregation is largely different between the US and Europe. For example, levels of segregation along ethnic as well as social lines were found to be modest in Europe compared to the US. He concludes that comparison is, however, difficult because of the fragmented social and political situations in Europe (Musterd, 2016).

In European cities, socioeconomic segregation has furthermore increased (Musterd et al., 2016). Spatial division has increased parallel to growing income inequality and trends of liberalization of housing systems. By using similar socio-economic indicators for multiple European cities, and employing a
dissimilarity index to calculate spatial differences within the cities, it was found that levels of socio-economic segregation vary greatly between different European cities (Musterd et al., 2016). Higher levels of spatial disparities in income levels and more liberal forms of welfare were found to cause higher levels of segregation. However, the relationship between them is not simple (Musterd et al., 2016). The time dimension and specific local cultural and social settings were argued to be influential in determining the segregation levels in different cities (Musterd et al., 2016). In particular, time was argued to be of importance when studying segregation levels. Rapid changes in economy, such as, for example, intensive housing privatization, may take time to exert spatial effects (Musterd et al., 2016). Likewise, initial reduction in segregation levels following restructuring in cities driven by large political projects may in the long term have a reversed effect, where segregation levels instead increase. The importance of employing a long time frame when studying segregation is also emphasized by Grundström & Molina (2016), who, in line with the findings presented by Musterd et al. (2016) argue that the liberalization of the housing market in Sweden can hardly be labelled as anything other than “…a promoter of social separation in urban space.” (Grundström & Molina, 2016). The repercussions by the political changes in the 1990’s have furthermore been evident later, in the recent decade, which is arguably another argument for employing long time frames to study the complex processes that form segregation (Grundström & Molina, 2016).

4.2.3 Residential segregation in relation to policy

Scarpa (2015) argues that social mix policies, i.e. policies aiming at mixing groups with different socio-economic characteristics, have shifted from being more general in nature by targeting both more affluent and less affluent areas to being exclusively targeting poor, immigrant-dense areas. The policies implemented in the 1990’s exemplifies the nature of contemporary counter segregation-policies (Scarpa, 2015). Studying income inequality in Malmö, a relatively large Swedish city, Scarpa (2015) found that increasing inequality in income levels between 1991 and 2010 depended primarily on concentration of capital at the top-end of the income, rather than an increase in minority groups. The notion that it is the majority that contribute to spatial segmentation of population groups, i.e. segregation, is argued by other research. Andersson et al. (2007) argue that the majority population tend to avoid areas with high concentrations of immigrant groups, as well as leaving areas that experience increasing shares of such groups. The latter is a phenomenon labelled as ‘white flight’ which refers to when parts of the majority population, i.e. the ‘white’ population in the US from where the concept was conceived, tends to move out of areas that are experiencing increasing shares of the minority groups (Massey, 1994). The phenomenon has been observed in Swedish cities too, but has arguably been paid little attention in the role it has had in driving residential segregation compared to the actions of the minority groups on the housing market in Sweden (Boverket, 2011). Minority groups, too, self-select to live in areas where people who share cultural and social values live, thus also contributing to spatial concentration of specific groups (Andersson et al., 2007).

In Sweden, counter-segregation measures that has been implemented in the form of different policy programmes since the second half of the 1990’s has been targeting specific areas that has been selected and labelled as being ‘socially distressed’, measured by specific variables such as having low income levels, high levels of crimes and large shares of ethnic minorities (see for example Integrationsverket, 2000). The ‘area-based’ approach to countering segregation has been criticized for being too narrow in the sense that it does not include interventions that sufficiently target the wide array of factors that influence residential segregation (Scarpa, 2015). Instead of focusing exclusively on distressed neighborhoods, changes to, for example, policies concerning income distribution should be discussed in Sweden (Scarpa, 2015). Andersson (2013) concurs that focusing on distressed areas omits the role of the majority population in the analysis, and argue that what takes place in an area or a neighborhood to a high degree relates to what takes place in other areas. Similarly, the lack of a more holistic approach in policy that aims at alleviating problems with residential segregation risks leading to inevitable failure, as the cause-
and effect chain may not be as simple as attributing observed problems to the characteristics of the area where the problems are observed (Musterd & Andersson, 2005). In another report, Andersson et al. (2007) argue that area based policies tend to restrict the negative effects of segregation to the areas targeted, which limits the analysis of processes that take place over all areas, the less affluent as well as the most affluent areas included. Musterd (2016), comparing segregation levels in Europe and between Europe and the US, found that although segregation may be apparent mostly in socially distressed areas, policy response should not necessarily be directed at such neighborhoods. On the contrary, similar to the arguments presented by Scarpa (2015), broader perspectives should be employed when creating policies that aims at alleviating problems with segregation, as segregation processes include multiple interrelated systems (Musterd, 2016). What is happening at a local level, he argues, is the result of processes occurring on multiple levels, including the national, regional, local and individual processes.

Similar to how different types of segregation generally occurs simultaneously, residential segregation is not determined solely by housing policy. Other fields of policy, such as economic policy and policies affecting the labor market, influence segregation levels. An example of such interrelatedness is given by Andersson & Kährik (2015, p. 112); “For example, recently arrived refugees are normally economically poor and predominantly young, giving them a subordinate position in the housing competition, with the result that they tend to be concentrated in less attractive parts of a city.” They continue by arguing that income gaps have widened in Stockholm since the middle of the 2010’s because of, among other reasons, a restructuring of the economy. Income tax cuts for working people and reduced costs for those who own properties with high taxation assessments are examples of such restructuring, which has made the rich, i.e. those who own expensive properties, richer and the poor poorer. (Anderson & Kährik, 2015)

Increasing income polarization also translates into spatial inequalities (Andersson & Kährik, 2015). Grundström & Molina (2016) relate widening income gaps to structural changes such as those mentioned by Anderson & Kährik (2015), but also to the demand from more affluent parts of the population for more personalized housing, which has made private companies increasingly build housing for those who can afford it, rather than for everyone.

4.2.4 Relative spatial location and characteristics of the housing stock

Characteristics of the housing stock, too, arguably influence the levels of residential segregation (Musterd, 2016). Andersson et al. (2007) argue that the processes of residential segregation are conditional on forms of tenancy, mainly because the housing market is not spatially homogenous. Stockholm, having the highest housing costs in Sweden, also has great intra-regional differences in housing costs depending on the geographical location. More specifically, housing in the inner city is argued to be almost double the cost than for housing in more peripheral areas (Boverket, 2014). The location of residence, and place-specific attributes such as, for example, availability to different types of services, as well as variables that are harder to define such as culture and norms, influence the attractiveness of areas which in turn can influence how areas a perceived. The perception of areas from people living in other areas can thereby lead to xenophobic perceptions of the people living in such areas (Hedström, 2015). Residential location may furthermore influence the opportunities for individuals in life in several ways. On the individual level, the geographical location of residence may provide different opportunities to build social networks, which in turn impacts the opportunities to find a job (Hedström, 2015).

Built structure such as infrastructure and housing involve several factors that influence segregation levels (Andersson et al., 2007). Relative geographic location, i.e. a ‘core-periphery’ factor, place-specific factors such as access to green areas and closeness to water and the relation to work-places and transportation opportunities are all influencing segregation levels in complex ways (Andersson et al., 2007). Such factors can also influence the way that areas develop, as they all contribute to how an area is perceived, in turn generating more or less interest to build, for example, certain types of housing with certain forms of
tenure (Andersson et al., 2007). In other words, similar to how perceptions of an area can generate social ‘barriers’ such as xenophobic views (Hedström, 2015), they can also influence how physical structure develops in areas. The spatial distribution of house types and tenure forms, factors that relate to the physical, built structure, could arguably be perceived as prerequisites for the segregation process (Andersson et al., 2007). Related to relative location is the access to public transportation. In a study of how public transportation affects median household income levels, Barton & Gibbons (2015) concluded that longer travel times to the city center were correlated with lower income levels in New York, but that it was mainly because of other neighborhood characteristics like, for example, education attainment and family formations rather than opportunities to commute.

4.2.5 Complications when studying segregation

For several decades, the importance to recognize individuals has been mentioned when studying segregation effects by international (Lloyd et al., 2014) as well as Swedish (Bostadsdepartementet, 1975) research. Sharing socio-economic characteristics like income levels, ethnicity or education levels with others that live in the same area does not automatically mean that individuals have the same life prospects and opportunities. Thus, studying groups only, and not individuals that the groups are composed of, may not give a valid measurement of reality (Lloyd et al., 2014). In a Swedish context, this has been exemplified by home-working women living in affluent areas, who, because of the prevailing ideals in society about the role of women, could be isolated from the life prospects that could be expected to be available by living in such areas (Bostadsdepartementet, 1975). Despite living in a ‘privileged’ area, societal norms, rules and culture may in other words restrict individuals in groups to take advantage of such privilege.

An unavoidable problem when studying segregation, or when studying any phenomenon that has a spatial dimension for that matter, is related to how space is categorized (Andersson & Kährik, 2015). The problem, generally referred to as the Modifiable Areal Unit Problem (MAUP), is thus a concern for all research containing a spatial aspect, regardless of the nature of the research carried out. How space is divided inevitably affects the analysis, and changing the spatial boundaries may change the interpretation of something drastically. Comparing results of segregation studies between cities, regions or countries is often difficult because of different geographical divisions (Andersson & Kährik, 2015). Wong (1997) demonstrates the problem of MAUP by analyzing how a commonly used segregation index, the dissimilarity index, tends to increase or decrease depending on the size of the spatial entities. He concludes that the effect of the MAUP inevitably depends on the nature of the analysis, and the type of data used (Wong, 1997).

In an attempt to overcome aforementioned problems with spatial divisions, Sweden Statistics, in conjunction with municipalities, created a uniform division of space in the 1990’s called ‘Small Areas for Market Statistics’ (SAMS). SAMS areas are homogeneous residential areas, and has national coverage (Statistics Sweden, 2008). It is described as being a homogeneous While discussing neighborhood effects rather than segregation indices, Amcoff (2012), similar to Wong (1997) argue that the effects and spatial patterns observed greatly depends on the geographical division performed. However, in the Swedish context, SAMS areas have been frequently employed in segregation studies. Andersson et al. (2007), researching how housing policy can influence residential segregation levels through construction of housing and changes to the existing housing stock, employ the SAMS division of areas and argue that it, despite shortcomings such as being relatively coarsely divided, is the best method of spatial division to produce comparable results (Andersson et al., 2007).

16 Examples of studies where SAMS areas have been employed include Malmberg et al. (2013), Marcińczak et al. (2015), Musterd & Andersson (2015) and Andersson & Kährik (2015).
5. Method

The following section will outline the methodological considerations that guided the processes underlying the results that are presented later on. While the following sections will describe the workflow in greater detail, the choice of performing spatial analysis with a GIS using panel data was made because maps allow for visualizations that may present spatial patterns that would otherwise not have been discovered. Presenting data for each variable included in the analysis in maps and graphs indicates spatial patterns, but it does not necessarily say much about how residential segregation has been affected differently in different times. To investigate how the different variables affected the spatial differences in real mean income levels, i.e. residential segregation along economical lines, a regression analysis was performed. Economical residential segregation was analyzed because income levels have previously been argued to be indicative of socio-economic ‘status’ (see for example Andersson et al., 2007), and considering the often interrelatedness of different types of residential segregation (Andersson et al., 2007; Stjärne et al., 2007) it could also be indicative of other forms of residential segregation, for example along ethnic lines. Also, as data availability guided the analysis, the income variable used was suitable to run regression on because of the relatively high temporal resolution it had.

5.1 Creating a longitudinal database

In order to describe and analyze the spatial distribution over time for the indicators, a database was created. As the historic data used were not available in digitalized format, but as scanned pictures of different statistical yearbooks, the database was created manually from scratch. This process included the choice of which variables for which data would be gathered. Choosing relevant variables for the purpose of the thesis relied partly on which indicators previous research has used as indicators of segregation, but also largely on the availability of data.

The database was compiled as a longitudinal data base, as it would be used to study time periods, which was motivated by other previous studies of segregation patterns over time (see for example Scarpa, 2015; Andersson & Kährik, 2015) that also employed longitudinal data in order to follow development over time. The study area changed over time (see Figure 1)\(^{17}\), which in terms of gathering data was problematic as data, logically, did not exist for areas in years where the areas did not exist. For the layout of the data, this was, however, not as much a problem as it was for when it came to analyzing the data. The areas that did not exist for specific years were added in the same way as areas that did exist, in order to make the dataset balanced, i.e. having a homogenous layout and observation counts. In the years that an area did not exist, the values for variables were marked as ‘missing data’. Later, a dummy variable that indicated whether an area existed, ‘1’, or not, ‘0’, at every year for all areas, which allowed the data set to be balanced and operational at the same time.

As the temporal aspect is central in this thesis, i.e. the development of spatial distribution of indicators over time, the data for indicators needed to fulfill some requirements. Firstly, the variables that were to be included in the database needed to be theoretically relevant for the purpose of the study. This was important not least because manual compilation of large datasets is rather time-demanding, which made testing of different variables that could perhaps have been included difficult, as each variable would be demanding to compile. Secondly, the data needed to have been collected in the same geographical areas over time, as unavoidable biases, such as, for example, the MAUP, would make the data incomparable between different points in time. Likewise, thirdly, if a variable was defined differently over time, the data would naturally indicate different things, rendering them incomparable between different points in

\(^{17}\) See also table 1 in Appendix for details of specific years when areas were created or broken out of existing areas.
time. A detailed description of the variables for which data were collected and used in the analysis performed in this thesis will follow below.

To reduce the risk of wrongfully written values, separate ‘control-variables’ were used. For example, when inputting values indicating the amount of apartments of different sizes in different areas, a separate column was added where all the apartments in different sizes were summarized. By dividing the summarized values with the total amount of apartments in each area, any other value than ‘1’ would indicate a mismatch between the two, thus indicating either wrongfully inputted values, or some other reason, such as different definitions of what an ‘apartment’ is in the variables.

5.2 Variables used in the analysis

The variables used in this thesis were based on what other articles have argued are indicators of socio-economic ‘status’. From a theoretical perspective, characteristics of the housing stock, too, such as form of tenancy, influence levels of residential segregation (Andersson et al., 2007). As housing policy greatly influences what is being built and where (Grundström & Molina, 2016), two variables indicating characteristics of the housing stock were included, as the purpose of this thesis was to study the long term effect of housing policy on the spatial distribution of two socio-economic variables, i.e. age structures and mean income levels, as well as two variables indicating characteristics of the housing stock, i.e. apartment sizes and form of tenancy. The choice of variables was also based on the historical review of Swedish housing policy presented earlier, as some variables are mentioned as being problematic in specific times, thus being targeted by policy. As the data indicates characteristics of the populations living in different areas, it is residential segregation that is studied, using the aforementioned variables as indicators. The transformations that were made for the data to suit the purpose of this study will be described below.

Table 2, indicating how much of the data for each variable that was missing and in which years data did not exist, may be used as a reference when the separate indicators are described in more detail below. The pattern of missingness was monotonous for all variables, i.e. when data was missing for a specific year, it was missing in all areas, and when data existed in a specific year, it existed in all areas.

Table 2: The amount of missingness for each variable, when the data was missing and where the data was gathered from.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Missingness (%)</th>
<th>Years where data was missing</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age categories</td>
<td>0.06</td>
<td>1930</td>
<td>Stockholm Statistics</td>
</tr>
<tr>
<td>Apartment sizes</td>
<td>0.06</td>
<td>1930</td>
<td>Stockholm Statistics</td>
</tr>
</tbody>
</table>

5.2.1 Income

Income level is a commonly used socio-economic indicator in segregation research, and has previously been employed in many studies (see for example Scarpa, 2015; Andersson & Kährik, 2015; Statistics Sweden, 2008) as well as in studies concerning inequalities in society18.

The data for income levels were gathered from different sources. Data from before 2000 was collected manually from the statistical yearbooks from Stockholm municipality for each corresponding year. Data

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18 For additional reading, see Nobel prize awarded The Prize of Inequality (Stiglitz, 2013).
for 2005, 2010 and 2015 was provided by Sweco. Data from both sources were defined in the same way, and were collected with the same geographical boundaries, which made it possible to combine them and include them in the same variable in the longitudinal database. Several transformations were made to the data.

Firstly, the data was retrieved as nominal income, i.e. as earned income from all sources per year, in total for each area. In order to get a mean income level for areas, the total sum of earned income in an area needed to be divided by the total population in the corresponding area. Then, because of the long time period studied, i.e. 1930-2015, inflation was controlled for by using the Consumer Price Index (CPI) (Statistics Sweden, 2019)\(^{19}\). Thus, the mean real income levels were calculated for each area, in each year, by the formula:

\[
\text{Mean real income} = \frac{X_t}{i_t} i_{2015}
\]

where \(X_t\) denotes the mean nominal income at year \(t\), \(i_t\) is the CPI value at year \(t\), and \(i_{2015}\) is the CPI value during year 2015. Controlling for inflation by using the CPI index was motivated by the need to make comparable estimates over time. Differences in nominal income varies greatly over time, making income levels increase exponentially, while the actual value, i.e. the buying power, does not increase at a similar rate. The calculation described above furthermore used 2015 as the reference year, meaning that the interpretation of the values is that the value observed is relatable to the purchase power that it would have in 2015.

In order to visualize the differences between areas in income levels specifically, an index of the deviation from the mean real income levels across the entire study area, i.e. Stockholm municipality, was calculated by summarizing the total income for all areas, and then dividing the total with the amount of areas. Then, each area’s mean real income level was divided with the overall mean income level, creating an index that indicated, in percentage, how much an area’s mean real income level deviated from the overall mean, where a value of one meant no deviation, below one indicated a deficit and above one a higher than average income level.

For the regression model, the variable was transformed further. As is indicated in table 2 above, the variable had a relatively large share of missing data. Omitting the observations in the variable for the years when data was missing through listwise-deletion, i.e. deleting the observation for all variables for where data on income levels were missing, was arguably not a preferable option. For example, the 1980’s would not have been possible to include in the regression model because data was missing for that time, thus making analysis of the MHP difficult. Listwise deletion may also lead to biased estimates, depending on the pattern of missingness\(^{20}\). Therefore, mean interpolation of unobserved values based on observed values and on observed inflation rate, was performed.

Some outliers were observed and deleted. Observations for Kista was excluded from the analysis in the years 1980, 1985 and 1990, because it was ‘introduced’ to the data, i.e. added to the geographical extent of Stockholm city, at a time point where there were no previous records to ‘weight’ the interpolation on. Therefore, negative values, which is unreasonable considering it is the mean income levels, was

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\(^{19}\) Figure 18 in Appendix shows the rate of inflation during the study period.

\(^{20}\) For more information, see Allison (2002, p. 6).
calculated for these years. I instead used the observed values in 1995-2015 and left Kista out from calculations of means, and also visualization for the mentioned years.

The observations between 1930 and 1965 for Nikolai were excluded from the analysis because the observed, and thus also interpolated, values were abnormally high compared to values calculated for other areas. The reason for that could be related to how the data was collected. Even if the definitions presented in the statistical yearbooks from where the data for those years were collected were the same as for later time periods, it cannot be ruled out that the collection process were different because of some place-specific factor. Said observations were thus treated as an outlier in these times, and was not included in neither visualization nor calculation of the mean, as it made almost all areas being below average, hence not explaining differences observed over the entire city, which was the aim for this thesis. Lastly, the variable was logarithmically transformed before running the regression analysis, because of non-normal distribution of the data.

5.2.2 Dependency ratios
Age, referred to as an indicator of demographic segregation (Andersson et al., 2007; Andersson & Kährik, 2015) is the second socio-economic variable studied in this thesis. While less commonly used in contemporary segregation studies, as mentioned by Andersson & Kährik (2015), the intertwined nature of segregation types arguably makes it relevant to study, especially in the context of following variables over long time period because data on age is more easily available than many other commonly used indicators, such as, for example, income levels. The motivation for using age as a socio-economic indicator is furthermore that in the Swedish context, age has often been a primary characteristic mentioned in investigations referring to housing policy, where young adults and families caused a demand for bigger apartments in the 1930’s (Socialdepartementet, 1945) and retirees were a concern as they could not afford to move to bigger apartments, and thus stayed in low-quality, small apartments, which made improvements to all parts of the housing stock difficult (Socialdepartementet, 1945). Again, the variable is also motivated by the stable collection of data over time, where the range for specific age groups have been homogeneous and consistent for all the time points included in the analysis since 1935, as is indicated in table 2 above.

To visualize the spatial distribution, and the change over time, dependency ratios were calculated for youth dependency, i.e. the share of the population aged 0-15, and aged dependency ratio, i.e. the share of the population aged 65 or older. The calculations were performed by dividing the total population aged below 15 years of age with the working age population, i.e. the population aged 15-64, for the youth dependency ratio, and dividing the total population aged above 65 years of age with the working age population for the aged dependency ratio.

5.2.3 Apartment sizes
As the historical summary of Swedish housing policy during the 20th century indicates, apartment sizes has in different times been discussed by policy makers. Subsidies for constructing new apartment houses in the 1930’s required a minimum of two rooms and a kitchen to be applicable (Socialdepartementet, 1945) and smaller apartments needed to be built to accommodate retirees that could neither afford or wished to live in bigger apartments in the same time period (Socialdepartementet, 1945). Years later, in the 1940’s and 1950’s, following the second world war, housing with two or three rooms with a kitchen again was a prerequisite for acquiring specific subsidies that cut construction costs (Inrikesdepartementet, 1965). In other words, the sizes of housing in different areas could arguably be indicative of who lives there, in turn making it relevant for studying residential segregation. The consistent categorization and similar definitions over time, too, made apartment sizes a suitable variable to include.
Because of this, data on apartment sizes, separated by the amount of rooms they have, were collected. For the regression model, the different sizes were aggregated to three groups; ‘small apartments’, containing single rooms and apartments with one room and a kitchen; ‘medium sized apartments’, containing apartments of two or three rooms with a kitchen, and ‘large apartments’, containing apartments with four or more rooms and a kitchen. The aggregation was done because including all variables induced high correlation numbers in the model.

5.2.4 Tenure forms
The form of tenure, as a share of the total apartment stock, is an indicative variable of what characteristics the housing stock has (Andersson et al., 2007), which influence the level residential segregation (Musterd, 2016). Types of tenancy has arguably been at the center of Swedish housing policy at different times. During the MHP, large shares of the housing stock categorized as ‘public good’ were controlled by municipalities. Later, liberal reforms in the 1990’s created incentives for municipalities to sell large shares of their housing stock that was dedicated to the ‘public good’ (Boverket, 2008), which led to transformations of many apartments from being for the ‘public good’ to being condominiums. Therefore, it was included in the analysis.

The types of tenancy that where data was available was for apartments categorized as condominiums, ‘public good’ and ‘uncategorized’. Of these, the two former were of particular interest because of the impact that aforementioned policies would have been expected to have on their abundance in the housing stock. However, unlike the income variable, the variables indicating tenancy form were not interpolated back in time because it is difficult to predict the share of the housing stock that is of a specific type of tenure in other ways than simply guessing, which would arguably not improve the analysis. In order to allow for analysis in the later years, however, mean interpolation, where a value between two observed existing values, were performed for the years 1995 and 2015, where data were missing, see table 2.

5.3 Visualizing the data in maps
To visualize the spatial differences of values in different times for the indicators mentioned above, thematic maps were created for different time periods. Putting several maps that represent different points in time may help in understanding spatial, and temporal, variations on the parish level.

5.3.1 Geographical division
Stockholm, i.e. the study area, has grown over the study period and parish boundaries has changed over time. New parishes have been added, existing parishes has been changed and divided into multiple, new parishes. Figure 1 in the Background section visualize the parish boundaries at different times, and table 1 in the Appendix details the precise time points for changes. The geographical extent of the study area, in other words, changed over time. To be able to visualize statistics and perform any form of spatial analysis on the data that correspond to the spatial extent where data were gathered in previous years, boundaries for different years needed to be drawn according to the specific year’s boundaries. This was done by using a shapefile containing parish boundaries as they were in 2008, i.e. how they are today. The parish boundaries covered water as well as land areas.

The geographical extent of the study area changes over time (Figure 1). Firstly, Stockholm has grown over time, and construction of new areas has expanded the city boundaries. Thus, the study area concomitantly grows over time. Secondly, the boundaries between areas have at times been changed due to, among other reasons, different approaches to gathering data in different times, where boundaries between areas have been changed to suit new divisions of statistical presentation.
In a GIS, water was cut out of the shapefile containing the parish boundaries by using a shapefile containing information on where water existed, in order to produce better visualizations that correspond to what Stockholm looks like in reality. The parish boundaries were then used as a base for georeferencing the maps that visualized the spatial boundaries of the parishes for different years. For each year when changes had been made to the boundaries, a screenshot of the map was imported into the GIS. Using some familiar points of reference, the maps were georeferenced to correspond to the shapefile containing the parish boundaries. After a map had been georeferenced, the parish boundaries could be edited to correspond to the screenshot of the map for the specific year that the map visualized, and saved as a separate shapefile that contained the boundaries for that year. The procedure was repeated for each year when changes had been made to the boundaries within the study area.

To connect data for each year, corresponding to the spatial extent that was defined in the specific year, data from the longitudinal database was imported for separate years. This was done by separating the data, and then importing it by joining data to the attribute table of separate shapefiles by using names as the common denominator.

Parishes were used as spatial entities because of the temporally stable data they contain. Over time, other systems of spatial divisions have been more frequently employed in segregation studies, such as the SAMS-areas created by Statistics Sweden. However, the disadvantage of newer systems of spatial division is that they are just that, new. As such, they cannot be used to analyze historically collected data on a meta level as is done in this thesis, because the only knowledge the researcher has regarding the spatial aspect of the data is that it is restricted to the boundaries used at the time of collection. While SAMS-areas may provide a higher spatial resolution, with a clearer statistical reasoning than the parishes used in this thesis, they are simply not employable when studying long time periods. Also, problems related to the MAUP would be present regardless of the spatial division used, as is argued by Andersson & Kährik (2015).

5.4 Regression analysis

The regression analysis was performed in Stata. As the analysis aimed at analyzing how the aforementioned variables influenced mean real income levels over time, and more specifically how the influence levels potentially varied both temporally and spatially, a pooled 'Ordinary Least Square' (OLS) was the preferred type of regression model. By using a pooled OLS model, dummy variables indicating which area specific observations were from could be included, which generated coefficients that indicated whether spatial differences in income levels have changed statistically, which complements the patterns observed in the graphs and maps produced for each individual indicator variable.

Income levels, rather than using a segregation index such as a dissimilarity index, like, for example, Musterd et al. (2016), was selected as the independent variable in the regression models mainly because, as was noted earlier, the study area changes over the course of the study period. As more parishes are added to the study area, the spatial context change, and index numbers are derived from a different ‘whole’ than before. The effect from this was that indexes converged to be less diverse spatially, which could be interpreted as being indicative of a lower level of segregation. However, it could also be interpreted as being the effect of a changing spatial context, causing the index number for each parish to be related to newly introduced areas. Income levels, however, as a continuous variable, does not react to a changing spatial context as the values are simply the observed, or interpolated, value. It is not calculated in relation to other areas, and is thus not affected by changes to the ‘whole’.

21 In each year’s statistical yearbook, a map showing the boundaries of parishes and the precise borders employed at the specific year was attached. These were used as references for the boundaries drawn for the different time points in this thesis.
The regression was furthermore run for different time periods, motivated by my observations of large ideological changes in housing policy. The second world war, arguably, greatly changed the way the role of housing policy in the sense that it started integrating other policy areas, such as social and financial politics (SOU, 1945; Boverket, 2007). The changes reflected an ideological change that would guide housing policy towards being concerned with life quality, rather than just being a question of meeting housing demand and reducing poor physical health, in the coming decades (Grundström & Molina, 2016). In 1965, I recognize a second shift. The MHP reflects an increasing state intervention by ambitiously building housing for everyone, and further integrating social life and questions concerning quality of life into housing policy. The third ideological shift, and perhaps the most drastic, is in the 1990’s, where many liberal reforms were implemented to make the housing market more liberal than it had been before. Because of missing data, the predictor variables relating to form of tenancy were not included in the first time period, i.e. 1940-1960. In the two other time periods, the model had the same specifications.

6. Results

6.1 Results from following variables over time
The variables that were studied with five-year intervals between 1930 and 2015 are presented separately below. For each variable, graphs indicating the trends over city areas, i.e. areas where several parishes have been agglomerated based on the definition given by the statistical yearbooks for each corresponding year, will be presented. Maps that visualize the trends for each separate area will also be presented, which indicates the spatial distribution of the variables on the parish-level, i.e. more detailed level. Descriptive statistics for the indicators analyzed are presented in table 3.

Table 3: Descriptive statistics for the different variables values in the separate parishes for all years where data was collected.

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Interpolated mean real income (continuous)</th>
<th>Aged dependency ratio (share)</th>
<th>Youth dependency ratio (share)</th>
<th>Small sized apartments (share)</th>
<th>Medium sized apartments (share)</th>
<th>Tenancy form 'public good' (share)</th>
<th>Tenancy form condominium (share)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>182896.8</td>
<td>25.1</td>
<td>21.9</td>
<td>35.7</td>
<td>46.9</td>
<td>16.3</td>
<td>27.0</td>
</tr>
<tr>
<td>Min</td>
<td>8665.7</td>
<td>4.9</td>
<td>7.7</td>
<td>7.5</td>
<td>19.6</td>
<td>0.5</td>
<td>0.1</td>
</tr>
<tr>
<td>Max</td>
<td>736108.2</td>
<td>72.7</td>
<td>53.6</td>
<td>78.7</td>
<td>74.2</td>
<td>68.6</td>
<td>83.6</td>
</tr>
<tr>
<td>Sd.</td>
<td>115493.5</td>
<td>12.2</td>
<td>9.3</td>
<td>17.1</td>
<td>12.1</td>
<td>18.2</td>
<td>19.3</td>
</tr>
<tr>
<td>Count</td>
<td>428.0</td>
<td>396.0</td>
<td>396.0</td>
<td>413.0</td>
<td>413.0</td>
<td>431.0</td>
<td>30.0</td>
</tr>
</tbody>
</table>

6.1.1 Socio-economic indicators

6.1.1.1 Mean gross income levels
The trend of gross income levels for the different city areas over the studied time period are presented in Figure 3 below. The variance before the 1960’s should be noted, as that data is less reliable than the data afterwards because those data points were interpolated using rather arbitrary interpolation methods. The graph indicates an increase in adjusted gross income levels for all areas. However, starting in the 1970’s, a pattern of divergence is visible, where income levels in Västerort and Söderort increase at a slower pace than in the areas located more centrally in Stockholm. The divergence grows for each five-year interval, which is the trend that, according to the graph, does not show indications of changing.
Figure 3: Mean real income levels for different areas between 1930 and 2015. 

Figure 4 indicates the deviation from the mean adjusted gross income levels for every fifth year. While it is based on the same data as Figure 3 above, it adds a perspective on how the divergence from the mean each area has developed over time. A value of one for each area would indicate perfect equality in terms of income levels. Deviation upwards from the value of one indicates how much higher income levels an area has compared to the mean income level for all areas at each year as a percentage value, and downwards indicates the opposite in percentage. An increasing divergence since the 1970’s is observable, where areas located in the central parts of Stockholm, i.e. Innerstan and Kungsholmsområdet, are increasingly deviating upwards, while the trend for Västerort and Söderort is virtually the opposite. Södermalm is relatively stable around a value of one, but has had an increasing trend, i.e. income levels close to the mean real income levels for the entire city of Stockholm, for the previous decades. The data before 1960’s, while being unreliable because the values are not observed but interpolated, shows different trends. With the unreliability in mind, it could also be that income levels were more uneven. The values in Figure 4 are, however, likely exaggerated, as a result of increasing unreliability because interpolation on earlier values are based on values that were interpolated on observed values in the 1960’s.

Figure 5 is a visualization of the data presented in Figure 4. The mean real income levels for the individual parishes are presented at four different points in time, and complements Figure 4 by visualizing the within-group variation, i.e. between parishes, in mean real income levels for the areas. Compared to 1935, mean real income levels are more evenly dispersed spatially at all other time periods. Within Västerort, the parishes located closer to the central areas of Stockholm have at all time periods had higher mean real income levels than the parishes located further away. The spatial differences in 1990 stand out as having relatively small differences between areas compared to other times of the study period. In 2015, greater differences could be observed within the areas, where parishes in more peripheral areas generally had lower mean real income levels than more centrally located parishes.

Figure 5: Visualization of the spatial differences in mean real income levels based on an index of deviation. Data sources: Stockholm Statistics, 1961, p. 267; Sweco AB, 2019.
6.1.1.2 Dependency ratio

Figure 6 below visualize the trend for youth dependency ratio, i.e. the share of the total population for each area that were below the age of fifteen. Data was missing for 1930 and 1935, and those years were therefore omitted from the presentation. The trends indicate an increased share of children in all areas during the 1940’s, reaching a peak in the 1950’s. The increase took place mainly in the more peripheral parishes, and less so in parishes closer to the central parts of Stockholm (Figure 7). Söderort shows greater temporal variations than the other area speaking at almost half of the population being below fifteen years of age in 1955, and over the course of twenty-five years decreased to twenty percent in 1980. The general trend, however, seems to be that Västerort and Södrort have higher shares of children than the other areas, and that the trend since the 1970’s has been that the youth dependency ratio is rather stable, and is slightly decreasing with time until around the 2000’s, where it is starting to increase in all areas.

![Youth dependency ratio (age below 15)](image)

The aged dependency ratio, i.e. the share of the total population in each area that is older than 65, is presented in Figure 6 below. In the 1940’s all areas had relatively low shares of aged populations, and only some parishes in the Innerstan area and Södermalm had older population shares of over ten percent (Figure 9). Over the following decades, the shares increased in all areas, but mainly in the parishes closer to the central parts of Stockholm (Figure 9). In the 1970’s, that trend slowed down in the central areas, i.e. Innerstan, Kungsholmsområdet and Södermalm, where Kungsholmsområdet had a majority, around 60 percent of the population being older than 65 (Figure 8). Relatively high shares of aged populations were observed in almost all parishes in 1990 (Figure 9). In 2015, shares of the population being older than sixty-five is spatially more equal than before around twenty percent (Figure 8 & 9). While it is not necessarily a trend, in 2015 there was a decrease in the aged dependency ratio for Västerort and Söderort, while an increase was observed in the other three areas, indicating a potential future trend.
Figure 8: Aged dependency ratio over time for each area.

Figure 9: Visualization of the spatial differences in shares of aged, i.e., above sixty-five years of age, populations.
6.1.2 Indicators of housing stock characteristics

6.1.2.1 The share of the total apartment stock in each tenure category

Figure 10, 11 and 12 shows the share of the apartment stock that were for the public good, condominiums and uncategorized respectively at different time points for the city areas. In general, areas located in the central parts of Stockholm differ from areas in more peripheral parts. While the trends are similar in all areas, the differences remain, or increase, between the central and peripheral areas.

Since the 1960’s, shares of the housing stock designated for the public good have been higher in peripheral areas than in the central areas (Figure 10). However, Södermalm had a relatively large share of public good apartments, more than ten percent larger than Innerstan in 1990. In the following years, it has been closing in on having the same shares as both Innerstan and Kunsholmsområdet, with all three having only a few percentage of the apartment stock in the category of public good. In the areas, as well as on a parish level, the share of the housing stock being in the public good category was relatively stable between the 1960’s and the 1990’s (Figure 11). However, in 2010, it had decreased in all areas (Figure 11). The general pattern of higher shares being located in more peripheral areas, remained unchanged.

![Share of apartments in public good category](image)

**Figure 10**: The share of the housing stock belonging to the public good category in each area.

The share of the apartment stock in the condominium category was relatively similar in all areas in the 1970’s (Figure 12). Starting in the 1980’s, a diverging trend, again between the central and peripheral areas, is indicated. While the share of apartments that is in the category of condominium has increased overall, it has happened more rapidly in the central areas. The spatial differences on the parish level mirrors the differences observed in Figure 11, but with higher shares of condominiums in centrally located parishes and lower in peripheral parishes (Figure 13).

In the ‘uncategorized’ category, the opposite trend from that observed in Figure 12 is observed, where areas are becoming more homogenous in terms of how big shares of the housing stock that are neither condominiums or apartments for the public good (Figure 14).

![Share of apartments](image)

Figure 14: The share of the housing stock belonging to the uncategorized category in each area.

### 6.1.2.2 Size categories for apartments

The trends of apartment sizes in the city areas are presented in Figure 15, 16 and 17 below. The long-term trends indicate that the share of small-sized apartments have decreased over time in all areas (Figure 15). In the 1940’s, a relatively dramatic change occurred in the peripheral areas, i.e. Söderort and Västerort, where the share of smaller apartments decreased by around fifteen percent and ten percent respectively. In the following decades, the rate of decrease levels out, which is similar to the trend seen in the central areas. The share of the apartment stock being in the small category was in Kungsholmsområdet still relatively high at the end of the study period at over forty percent (Figure 15).

The medium sized apartments increased as a share of the total apartment stock by more than twenty percent each in the peripheral areas of Söderort and Västerort in the 1940’s, indicating an opposite trend to the decrease in smaller apartments (Figure 16). In the later period of the study period, the share of medium sized apartments in Västerort increased to reach a similar share as the share in Söderort, at almost seventy percent. In the more central areas, the trend indicates that medium sized apartments have had a relatively stable, and slow, rate of increasing shares of the total apartment stock, where shares have increased by around twenty percent in each of the three central areas.

From the 1950’s, Västerort had a larger share of large apartments than the other areas (Figure 17). However, in the previous decade, especially in the 2010’s, it has decreased to reach similar levels as the other areas. Södermalm and Kungsholmsområdet has had similar shares of large apartments, as has Söderort and Innerstan, over the study period.
Figure 15: Apartments having one room and a kitchen or single rooms without a kitchen, as a share of the housing stock, for different areas.


Figure 16: Apartments having two or three rooms and a kitchen, as a share of the housing stock, for different areas.

6.2 Results from the regression analysis

While the visualization of the variables spatial distribution over time describes how circumstances have changed over time, regression analysis may indicate how the effect of the variables on income levels have changed over time. More specifically, analyzing the effects in different time periods, delimited by when different policies have been implemented, may shed light on how changing circumstances may change the way that segregation can be understood.

Below, the regression results from running pooled OLS models with the same specification, but run on three different time periods, i.e. 1940-1965; 1965-1990 and 1990-2015, are presented in table 4. The variables indicating form of tenure were not included in the first model because there were no available data. Thus, those variables were excluded. The benefit from running the regression analysis on different time periods was that it could indicate the different effects of the independent variable on the dependent variable following changing housing policy. The coefficients were also, arguably, easier to interpret and compare, rather than if all years for when data was collected had been included separately as that would have produced a lot of coefficients that would have shown the same general trends as it did in the three different models employed, but on a more detailed level. The long term changes were of interest, and I therefore opted for separating the regression models based on time periods that made sense from a theoretical perspective. The dependent variable was the logarithmically transformed mean real income levels.
Table 4: Pooled OLS regression results with the mean real income levels as the independent variable.

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<th></th>
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<tbody>
<tr>
<td><strong>Dependency ratio</strong></td>
<td>(share)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth dependency</td>
<td>Coef.</td>
<td>-0.0111</td>
<td>-0.0135***</td>
<td>-0.0065</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.0097)</td>
<td>(0.0032)</td>
<td>(0.0055)</td>
</tr>
<tr>
<td>Aged dependency</td>
<td>Coef.</td>
<td>0.003</td>
<td>0.005**</td>
<td>-0.0064**</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.0068)</td>
<td>(0.0016)</td>
<td>(0.0021)</td>
</tr>
<tr>
<td><strong>Geographic area</strong></td>
<td>(share)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innerstan</td>
<td>Coef.</td>
<td>Omitted (reference)</td>
<td>Omitted (reference)</td>
<td>Omitted (reference)</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kungsholmsområdet</td>
<td>Coef.</td>
<td>-0.5152*</td>
<td>-0.0099</td>
<td>0.0899</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.2035)</td>
<td>(-0.0659)</td>
<td>(0.0731)</td>
</tr>
<tr>
<td>Södermalm</td>
<td>Coef.</td>
<td>-0.717**</td>
<td>-0.0383</td>
<td>0.1439**</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.2085)</td>
<td>(0.0616)</td>
<td>(0.0609)</td>
</tr>
<tr>
<td>Västerort</td>
<td>Coef.</td>
<td>0.2604</td>
<td>-0.1576**</td>
<td>0.0534</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.2629)</td>
<td>(0.0619)</td>
<td>(0.0828)</td>
</tr>
<tr>
<td>Söderort</td>
<td>Coef.</td>
<td>-0.0839</td>
<td>-0.167**</td>
<td>0.0572</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.2950)</td>
<td>(0.0657)</td>
<td>(0.0778)</td>
</tr>
<tr>
<td><strong>Apartment size</strong></td>
<td>(share)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small sized apartments</td>
<td>Coef.</td>
<td>0.0076</td>
<td>-0.0135***</td>
<td>-0.0192***</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.0099)</td>
<td>(0.0027)</td>
<td>(0.0043)</td>
</tr>
<tr>
<td>Medium sized apartments</td>
<td>Coef.</td>
<td>-0.0131</td>
<td>-0.0074**</td>
<td>-0.0073**</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.0128)</td>
<td>(0.003)</td>
<td>(0.0028)</td>
</tr>
<tr>
<td><strong>Form of tenancy</strong></td>
<td>(share)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Condominium</td>
<td>Coef.</td>
<td>0.0013</td>
<td>0.0058***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.0019)</td>
<td>(0.0014)</td>
<td></td>
</tr>
<tr>
<td>Public good</td>
<td>Coef.</td>
<td>-0.0006</td>
<td>-0.0162***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.0018)</td>
<td>(0.0021)</td>
<td></td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
<td>Coef.</td>
<td>12.0664***</td>
<td>12.8462***</td>
<td>13.6589***</td>
</tr>
<tr>
<td></td>
<td>Sd.</td>
<td>(0.9063)</td>
<td>(0.2317)</td>
<td>(0.3055)</td>
</tr>
<tr>
<td><strong>N.</strong></td>
<td></td>
<td>121</td>
<td>159</td>
<td>165</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td></td>
<td>0.2923</td>
<td>0.5372</td>
<td>0.7302</td>
</tr>
<tr>
<td><strong>Adj. R-squared</strong></td>
<td></td>
<td>0.2417</td>
<td>0.5059</td>
<td>0.7127</td>
</tr>
<tr>
<td><strong>Mean VIF</strong></td>
<td></td>
<td>5.16</td>
<td>4.88</td>
<td>5.1</td>
</tr>
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</table>

Standard error in parentheses
*p<0.05, **p<0.01, ***p<0.001
The interpretation of the coefficients is that a coefficient of, for example, 0.01 in an independent variable reflects an increase of 1 percent in the dependent variable, i.e. in mean real income level. The result from the regression models indicate several findings. Firstly, the coefficients for all the variables in Model 1 except two of the spatial dummy variables, i.e. Kungsholmsområdet and Södermalm, were statistically insignificant. This could be a reflection of the fact that data before the 1960’s for some variables may be less reliable. It could also potentially be indicative of how the indicators of residential segregation that were included in the analysis, and that is commonly used to explain residential segregation today, are not able to explain the segregation before the 1965.

Youth dependency ratio indicated negative coefficients that were relatively similar for all the models. Aged dependency, on the other hand, was positively correlated with increasing mean real income levels in both Model 2. Coefficients for the variables indicating forms of tenancy indicate two separate trends. A higher share of the housing stock being condominiums were positively correlated with higher mean real income levels in Model 2. In Model 3, the influence was statistically significant, and the coefficient increased, indicating an increasingly positive effect over time. For apartments categorized as part of the ‘public good’, the trend could be argued to be the opposite; the coefficients were negative in both models, but more so in Model 3 than in Model 2. Small and medium sized apartments, i.e. smaller than 4 rooms and a kitchen, are negatively correlated with increased mean real income levels. As the reference for these categories are the large apartments, it could be concluded that larger apartments, in general, have a more positive correlation to mean real income levels than smaller apartments do. The differences between geographical areas are indicated to have changed over time. All areas have moved from being negatively correlated to higher mean real income levels compared to Innerstan to, over time, being positively correlated.

The R-square, and the adjusted R-square, both increased greatly for each year, indicating that Model 3 could explain the variance in mean real income levels better than Model 2 and 1. This could be interpreted as that the indicators that were included in the models influence spatial income differences to a higher degree than they did in the past, i.e. that residential segregation along economical lines is characterized by other factors today than it was in previous times. More variables were statistically significant in Model 3 than in the two other models, which also indicates that the indicators, i.e. the independent variables, were more relevant in terms of explaining variance in the dependent variable than in previous times.

Post-estimation tests indicated no problem with heteroscedasticity. The VIF-number indicates some multicollinearity in all models, especially in Model 3. This was not unexpected considering that different types of segregation tend to occur simultaneously, which arguably also means that indicators of different types of segregation, too, should occur simultaneously. Although collinearity could be avoided by dropping variables, they were all included as the aim of the study was to follow some specific indicators.
7. Discussion

Long term changes in the spatial distribution of some socio-economic variables and indicators of characteristics of the housing stock has been studied in this thesis. By visualizing values for different parishes in maps at different points in time, the differences between areas for the variables have been described over time. Graphs indicating the trends for different areas, consisting of several parishes that are geographically related, see Figure 2, were presented to give an overview of the continuous trends over the entire study period, or for parts of it if data was missing and could not be properly interpolated, for each variable. Long-term trends will be discussed in relation to the review of undertaken housing policy from the 20th century until today, presented earlier in the thesis. To complement the analysis, regression models were run for different time periods. The results indicate that the studied variables have influenced mean real income levels differently in different times.

Before turning to the discussion, it should be mentioned that while this study has studied indices of segregation related to housing policy between 1930 and 2015, segregation as it is defined in official documents today (see for example Bostadsdepartementet, 1975; SOU, 1998; Socialstyrelsen, 2010) was not perceived as a problem before sometime in the 1970’s (Grundström & Molina, 2016). Therefore, addressing the impact of counter-segregation policy before then is difficult, because there were no policies that specifically aimed at reducing segregation levels. This is also the reason why there are no descriptions of housing policies aiming at reducing segregation before the 1990’s, and more towards the end of the study period. It reflects, I think, the changing role of housing policy from earlier times to contemporary policy. Social problems rather than physical conditions are on the top of the political agenda today. However, I argue, even if segregation has not been perceived as a problem, it does not mean that it has not existed in earlier times. I think it is important to nuance today’s understanding of segregation as a societal problem, often described as becoming an increasingly acute problem (Vogel, 1992; Andersson et al., 2009) by looking back at how it has developed before.

The long-term trends for mean real income levels indicate, unsurprisingly, an increase in all areas (Figure 3). However, after having been relatively spatially homogenous on the area level in the 1970’s and 1980’s (Figure 4), as well as on the parish level in 1990 compared to 1960 (Figure 5), increasing spatial differences were observed in 2015 (Figure 5). Increasing differences, i.e. increasing residential segregation along economical lines, was expected, and has been found by several studies preceding this thesis (see for example Andersson et al., 2007; Andersson et al., 2009, Grundström & Molina, 2016). Mean real income levels could be described as being increasing and diverging spatially simultaneously. In Stockholm, the general trend over time is arguably that higher mean real income levels, compared to the general mean, in more central areas, and lower mean real income levels in more peripheral parishes (Figure 5).

Fluctuations in dependency ratios over time can potentially be related to policy. Increasing levels of youth dependency in the 1950’s (Figure 6), especially in Söderort and Västerort, is conceivably the result of the construction of housing that could accommodate families that characterized housing policy in the 1930’s (Socialdepartementet, 1945). Such construction policy, aiming at constructing housing specifically for families, initiated spatial differences in dependency ratios, i.e. age structures, mainly between centrally located parishes and peripheral parishes that would last for several decades. For example, the comparison of maps indicating youth dependency ratios in 1940 and 1990 (Figure 7) reveals a strikingly similar pattern. Considering the negative correlation between youth dependency ratio and increasing mean real income levels at all time periods (table 4), it is not surprising that areas with socio-economic problems are today located mainly in peripheral areas.
When studying housing policy over a long time period, problems faced in the past often seem to be reoccurring. For example, during the second world war, housing policy needed to continue construction of new housing despite the problems that the war had caused, such as for example the changed allocation of financial resources, where the funds allocated to the housing sector was greatly reduced and interest rates for loans sharply increased (Socialdepartementet, 1945). Concerns of the risk that rental subsidies, which would allow construction to continue in a sufficiently high pace that could meet demand, would favor some population groups over other, and in the future create a separate ‘segment’ of the housing market, were avoided by implementing temporary rental controls, which were removed when the construction costs had decreased again Socialdepartementet, 1945).

Decades later, however, the concerns of creating separate segments of the housing market, which would inevitably favor some groups and disfavor some, were not present when the MHP was implemented. Subsidies and deductions on interest rates were implemented as tools to allow people to move to the newly built areas (Inrikesdepartementet, 1965). I argue that the risk of subsidizing parts of the housing stock, especially for new parts of the housing stock, were recognized and acknowledged already in the 1940’s. In fact, the risks were too high considering the potential negative effects, i.e. segmentation of housing in the future housing market then, and other solutions were employed. And the risks, as the MHP has shown, led to a segmented housing market, where the areas built up during the MHP-era is still today, in the 21th century, represents a separate segment of the housing stock with different characteristics than in, for example, areas in the inner city. Forms of tenancy are widely different in many of the MHP areas (Figure 11 & 13). While the problems faced were in many ways different in the 1940’s and in the 1960’s and 1970’s, there were also many similarities. It was at both times that of meeting demand of increasing population levels in the cities, which required state-funded support for constructing through subsidies that reduced construction costs. The potential risks, such as creating segmentations of the housing market following changes, and political solutions discussed, were in many ways similar too.

7.1 Long term trends of indicators in relation to undertaken policy
As Musterd et al. (2016) points out, initial reduction in segregation levels following large scale political projects of reconstruction may with time turn into a reversed trend, i.e. where segregation levels increase. This has arguably been the case regarding residential segregation along economical lines in Stockholm. A narrowing of spatial differences in mean real income levels (Figure 4) coincides with the MHP programme in the 1960’s and 1970’s. In the following decades, however, the trend is a divergence of mean real income levels between different areas (Figure 4 and 5). Later, specifically during the 21th century, mean real income levels have become increasingly different between different areas (Figure 3). In 2015, the variation had increased, within the areas, i.e. on the parish level, as well as between the areas (Figure 5). These results arguably support the conclusion that the MHP laid the foundation for residential segregation to develop from, drawn by multiple earlier studies such as Grundström & Molina (2016), Vogel (1992) and Andersson et al. (2009). The results also support the argument that increasing income polarization translates into spatial inequalities made by Andersson & Kährik (2015). Divergence from the mean real income levels have increased simultaneously with increasing income levels (Figure 3 and 4). It could be argued that the liberal reforms on the housing market, along with other changes to, for example, decreased taxation levels (Andersson & Kährik, 2015) and more restricted opportunities to receive state funded subsidies and loans for less affluent people (Boverket, 2008), have achieved the aim of making the housing market more liberal in the sense that it is driven by market forces to a higher degree. However, the cost of a more liberal housing market has, it could be argued, to a degree been increasing spatial differences in terms of income levels.

The regression results, see table 4, also indicates that the influence that form of tenancy has on income levels have increased. In the period between 1960 and 1990, the model indicates little difference between the effects of the different forms, i.e. condominium or public good, of tenancy. In the later time period, i.e.
between 1990 and 2015, the amount of condominiums has increased overall (Figure 12). Perhaps more importantly, the share of the housing stock in different areas that are condominiums have become more different between different areas, where inner city areas have larger shares of condominium apartments than outer city areas (Figure 13). Simultaneously, the influence of share of condominiums and public good-apartments have on income levels have diverged. The selling-out of apartments belonging to the share of the housing stock dedicated to ‘public good’ which started to occur in the 1990’s (Boverket, 2008), following liberal reforms of the housing market that made housing enterprises owned by the municipalities, i.e. the housing enterprises that owned the housing built in the MHP-era in the 1960’s and 1970’s, arguably generated increasing differences in terms of the characteristics of the housing stock in different areas. The results support previous observations made by Andersson et al. (2007), as the effect of having large shares of apartments that are dedicated to the ‘public good’ were indicated to have an increased negative effect on mean real income levels after the 1990’s than between the 1960’s and 1990’s, see table 4. Residential segregation, in this case along economical lines, therefore indeed seems to be conditional, to a degree, on the forms of tenancy. It is, however, difficult to distinguish the causal relationship in detail. It could be that the effect of tenancy, to a higher or lower degree, is in reality a combination of other factors. For example, more affluent people living in other areas may perceive areas with lower shares of condominiums and higher shares of ‘public good’-apartments to be less attractive, and therefore opt out of moving to such areas. Like Scarpa (2015) and Andersson (2013) argue, area-based policies aiming at counteracting segregation tendencies may omit such ‘holistic’ analysis, which perhaps may limit the knowledge of the cause- and effect processes that underlie residential segregation. I therefore argue that the results, although indicative, should be approached cautiously, because segregation processes are, as has been emphasized by research, complex (see for example Hedström, 2015 & Andersson et al., 2007).

It could be argued that the ability to intervene through housing policy has furthermore been cramped by the liberal reforms carried out in the 1990’s, which could be part of the reason why policies have been unable to successfully reduce observed residential segregation in the 21th century. During the MHP, the state encouraged municipalities to construct housing on newly allocated land, subsidized construction costs and gave municipality owned housing enterprises the responsibility to maintain large parts of the housing stock (Boverket, 2008). In the areas that were mainly targeted by the MHP, i.e. Söderort and Västerort, the share of the apartment stock dedicated to the ‘public good’ were in the decades following the MHP between thirty and forty percent. Arguably, controlling large parts of the housing stock translates to an increased ability to influence and change the course of unwanted development.

If characteristics of the housing stock, such as, for example, tenancy forms, influence levels of segregation as is argued by Musterd (2016), decreased control of the housing stock would presumably decrease the ability that the state has to change the characteristics of the housing stock, and thereby also the ability to formulate policy that can reduce levels of residential segregation. Looking at the large counter-segregation policies that have been carried out in the 21th century, it is clear that there is no focus on changing characteristics of the housing stock. Policies, such as the “Särskilda insatser i utatta bostadsområden” that was implemented in the second half of the 1990’s and the ‘successor’ “Storstadspropositionen”, were both carried out in similar ways in that funds were distributed to specific municipalities that contained areas that, according to some socio-economic indicators, were specifically distressed. However, I argue, the ability to affect one of the core problems related to increasing residential segregation, namely the characteristics of the housing stock (Musterd, 2016; Andersson et al., 2007), specifically the tenancy forms, had been reduced greatly by the liberal reforms carried out earlier in the 1990’s, where municipality owned housing enterprises increasingly acted on the same conditions as private companies on the free market and sold out large shares of the housing stock that belonged to the ‘public good’ (Intergrationsverket, 2002). Instead, the policies targeted individuals living in the distressed areas, which admittedly was contradictory because it neglected the fact that individuals may move out of the areas, conversely meaning that funds allocated to an area did not improve the area per se (Intergrationsverket, 2002). The relevance of the characteristics of housing stock, perhaps not the size of apartments but the tenancy forms, on residential segregation along
economical lines, indicated by comparing the increasing spatial divergence of mean income levels (Figure 4) with the increasing spatial differences in shares of the housing stock consisting of condominium apartments (Figure 12 & 13) arguably strengthen this conclusion. So does the results of the regression analysis (table 4) where the share of condominium apartments affects mean income levels to a milder degree than does the share of ‘public good’ apartments.

Effects of ambitious projects, such as the MHP in the 1960’s and 1970’s, furthermore impacts not only the areas they mainly target, but also existing areas. The socio-economic indicators followed in this thesis indicates changes that, arguably, correlate to such policies. While the MHP did not specifically target inner city areas, but rather peripheral areas (Boverket, 2008), it had repercussions on all areas. Figure 8 indicating the share of the population that is ageing, for example, indicates that the share of the population being above sixty-five years of age rose relatively dramatically during the 1960’s, continuing to a peak in the second half of the 1970’s, where it reached levels above sixty percent in Kungsholmsområdet. Simultaneously, the apartment stock in that area consisted mainly of smaller apartments (Figure 15) which had been recognized as the most common housing for older people, as they often do not afford, or need, more spacious housing (Socialdepartementet, 1945). During the decades following the MHP, where new areas were built under the device that there should be housing for everyone in the society (prop. 1967:100), an out-migration of people took place in all areas. Having the increasing aged dependency ratio in Kungsholmsområdet in mind (Figure 8), and the increasing youth dependency in the more peripheral parishes (Figure 7), the out-ward migration from Kungsholmsområdet was seemingly performed mainly by younger people, partly by families with children, as is indicated by the moderate decrease in youth dependency ratio in Kungsholmsområdet during the same time period (Figure 6) but mainly by adults in working age. It is not possible to conclude that the young population that moved from Kungsholmsområdet moved to newly constructed MHP areas from the data studied considering the decrease in population in all areas, which could perhaps be attributed to other factors, such as, for example, the green wave in the 1970’s. However, the construction in other areas arguably changed the age structure in different areas, and thus created rising demographic segregation levels between periphery and central areas.

7.2 Broader discussion of segregation policy
Interpreting the maps presented in the results section, the peripheral areas are to a higher degree than central areas ‘socially distressed’. For example, mean real income levels tend to be lower (Figure 5) and have historically had higher shares of youth dependency ratios (Figure 7), where the two are correlated according to the regression results (table 4). Both variables are commonly employed as indicators of segregation levels (see for example Andersson & Kährik, 2015; Musterd et al., 2016; Scarpa, 2015) Politicians tend to refer to such ‘distressed areas’, i.e. socio-economically ‘weak’ areas, when discussing segregation. Since the 1970’s, when segregation started becoming a politicized question (Grundström & Molina, 2016), policies aiming at reducing residential segregation have almost exclusively been concerned with how such areas can be ‘improved’. While having acknowledged the relational nature of segregation, i.e. where all areas play a role in influencing segregation levels, already in the 1970’s (Bostadsdepartementet, 1975), it could be argued that the structure of policy programmes such as the “Särskilda insatser i utsatta bostadsområden” and “Storstadspropositionen” to a high degree has not recognized the areas outside of the targeted, ‘distressed’, areas. While it is beyond the scope of this thesis to discuss, it could be theorized that policies must be studied in the light of the way that democracy works. Policy makers are dependent on votes from the population. Not delivering results that show that a policy achieved positive effects may result in fewer votes, and thereby a risk of losing power. Creating policy that target broad structures that, through complex processes, influence segregation levels, is not only difficult, but also, I argue, perhaps detrimental in terms of being able to produce results that the

22 See Figure 19 in the Appendix.
public opinion appreciates as it would be difficult to measure the impact it would have. Therefore, even if the holistic approach is argued to be vital if segregation levels are to be reduced by research (Scarpa, 2015; Andersson, 2013; Musterd & Andersson, 2005; Andersson et al., 2007; Musterd, 2016), as well as by Kulturdepartementet (2018), it is not employed in reality because it does not fit the larger aims of policy makers.

Connected to the discussion of the political system, and the way that it impacts policies and thereby segregation, is that of how results are reported and interpreted. This can be exemplified by the definition of segregation being the opposite of integration, given by Socialstyrelsen (2010). I think that such a connection can be logical in a time where ethnic segregation is high on the political agenda (see for example Malmberg et al., 2013; Grundström & Molina, 2016). However, when such a definition is used when policies are evaluated and conclusions are drawn, which will form understandings that will guide future policy, it may affect the direction of future policy. In the case of the ‘Blommanpengarna’-programme carried out in the 1990’s, Integrationsverket were tasked with summarizing the effects of the programme (Socialstyrelsen, 2010). It could be theorized that Integrationsverket employed a definition similar to that of Socialstyrelsen (2010) considering the role that it had, i.e. handling questions related to immigration and integration. It is conceivable that such an institution lacked expertise in tackling segregation as a multi-dimensional societal problem depending on many socio-economic variables, like Socialdepartementet (1997) argued. Therefore, the conclusions, that perhaps guided future programmes were based on knowledge created based on experiences described by an institution whose main focus is to promote integration. The interpreter, i.e. Integrationsverket, perhaps lacked the holistic view that, according to, for example, Scarpa (2015) and Andersson (2013), is needed to tackle segregation. Later programmes included many similar approaches, and today the focus is still not on the entire city, but rather economic support is provided for ‘socially distressed’ areas.

The continued focus on specific areas in Swedish counter segregation policy is, in the light of observed trends of increasing residential segregation along economic lines (Figure 4 & 5) since the 1990’s, where increasing income polarization also seem to lead to increasing spatial inequalities, argued also by Andersson & Kährik (2015), not in line with the arguments made by previous research. Musterd & Andersson (2005), Andersson et al., (2007), Andersson (2013), Scarpa (2015) and Musterd (2016) all express a need for policy to target larger structures of social inequalities, along different socio-economic lines on a regional and national level rather than on the area or individual level. The results presented in this thesis support that standpoint. Increasing residential segregation levels along economical lines despite multiple policies undertaken since the 1990’s is arguably a strong indicator that policies have failed in achieving the ambitious goal of reducing segregation levels.

7.3 Limitations of the study and sources of error

As is argued by Lloyd et al. (2014), assuming that an area that on an aggregated level is socio-economically characterized by, for example, low income levels, does not automatically mean that the individuals in said area share such characteristics. The spatial resolution employed in this thesis, i.e. the parish level and the city areas, does not allow for such deviations to be depicted. As such, the analysis assumes that the parishes are more or less homogenous within, but vary between different spatial entities. I argue that this is not necessarily detrimental for the analysis, but it is important to keep in mind when analyzing the results. Modelling and visualizing social processes is difficult because of the complex, multi-level interactions that they include (Hedström, 2015; Andersson et al., 2007). Therefore, while not being a liability per se, the spatial division of Stockholm used in this thesis may have produced results that would not correspond to a

\[23\] Integrationsverket was a governmental institution that handled many of the areas that are today handled by Migrationsverket.
similar study employing a different method of dividing space. A limitation of not choosing a standardized way of spatial division used in other research, such as the SAMS area system, is that the results presented in this thesis may not be comparable with other segregation research. However, considering data availability, using a standardized system was not possible because such systems were not employed when data was gathered. Thus, data availability limited the choices of how to divide space to the spatial division used when the data was gathered.

Another limitation of the study is difficult to define housing policy, and to delimit it from other policy areas. As was described in the historical review of Swedish housing policy, housing policy has changed over time, increasingly encompassing social and financial politics. The relation between results produced by quantitative research and undertaken policy in different times is therefore often speculative in the sense that it would be plausible, rather than certain, that a policy would lead to the observed values in the indicators studied.

The indicators studied were furthermore chosen partly on theoretical grounds, but the choice was largely dependent on data availability. Including other variables that are influencing segregation levels, such as for example ethnicity, would have been relevant. Interpolating variables such as shares of the population having different ethnicities is furthermore difficult as they depend on many other factors, on multiple geographical levels. Global crisis such as for example wars may increase flows in some years, and modelling specific flows would require an analysis that was beyond the scope of this paper.

Human error is another important potential source of error to mention. Considering the manual work included in constructing the database on which analysis has been performed, wrong values may have been inserted. While some measures were taken to prevent this, I do not think it was sufficient to guarantee correct values in the entire database. Thus, the results should be approached with some caution.

7.4 Concluding remarks and turning back to the research questions

Turning to the thesis research questions, it could be said that Swedish housing policy has undergone drastic changes over time since the start of the 20th century, where three primary ideological changes has been recognized. From not being a political concern, housing has over time developed to become an important societal function. In the 1920’s, following the first world war, housing policy as a way of to avoid high unemployment were undertaken. Approaching the second world war in the 1940’s, the main concerns were related to over-crowding and concerns about physical standard. During the second world war housing policy became increasingly intertwined with social policy and financial policy, and in the following decades it would continue concern a wider array of social concerns. The MHP reflected such development, where the state perceived housing as an integral part of all individual’s lives chances. Leading up to the 1990’s, the traditional problems of physical condition and overcrowding had been replaced by questions of more social character. Along with liberal reforms and decreasing levels of state intervention in the housing market, levels of residential segregation have risen since the 1980’s. A concluding remark is that housing policy has over time increasingly been concerned with social questions surrounding housing rather than housing itself. In the 21th century, housing policy has largely been concerned with reducing levels of segregation by employing area-based approaches, that has thus far not been particularly successful in reducing segregation levels.

The trends of changing spatial distribution over time for the indicators studied indicated relatively large changes over time. Spatial differences in mean real income levels were more uneven before the MHP period, i.e. from the middle of the 1960’s to the 1990’s. Following the liberal reforms implemented in the 1990’s, spatial differences are rising again. The spatial distribution of people based on age vary spatially too. Following urbanization processes, the 1930’s and 1940’s created incentives for the state to construct housing for families with young children, which is reflected by relatively low aged dependency ratios and
increasing youth dependency ratios in the 1950’s. Spatial ‘sorting’ of the population based on age was also reflected by increasing aged dependency in inner city areas, especially Kungsholmsområdet, in the 1970’s and 1980’s, where families with children in many cases moved out to newly built MHP areas. A constant relationship of higher aged dependency in central areas and higher youth dependency in more peripheral areas was observable throughout the study period. Increasing shares of condominiums following liberal reforms were, unexpectedly, observed in the 21th century. Condominiums were furthermore indicated to be positively correlated with higher mean real income levels in the regression analysis. Smaller apartment sizes, relative to larger apartment sizes, were negatively correlated with mean real income levels in the regression analysis. Apartment sizes, however, did not vary over time to the same degree as, for example, form of tenure or income levels, indicating the longevity of built structure that influence residential segregation levels.

The regression analysis furthermore indicated that the influence of the indicators on residential segregation along economical lines has changed over time. Form of tenancy has had an increasing influence on mean real income levels, where condominium apartments and ‘public good’-apartments are increasingly representative of areas with higher and lower mean income levels respectively. The large areas have also seen a shift in mean income levels relative to the other areas. From generally having had higher mean real income levels in the 1940’s, 1950’s and 1960’s, Västerort, where many area were added in the MHP period, have lower mean real income levels than the more central areas today.

7.5 Suggestions for future study
Employing quantitative methods to study long term residential segregation trends by following the spatial distribution of socio-economic indicators and indicators of housing characteristics has shown several interesting findings. While the exact effect of the indicators on mean real income levels may be difficult to assess considering the nature of the data, I argue that the trends indicated by the models indicates a pattern on which further research should be conducted. Relating trends to housing policy and other policy areas, such as financial and social politics, should increasingly be done by segregation research. Considering the relatively failed outcomes regarding the aim of reducing residential segregation of counter-segregation policies launched since the 1990’s in Sweden, it could be argued that such research is sorely needed if future policies are to be more successful. To also study spatial effects could increase the knowledge of how the characteristics of one area affects other areas.

It is common in Swedish segregation studies to study Stockholm because it is one of, if not the only, city that can be considered relatively large in an international context. However, studying smaller cities in the same way would provide information of how segregation in cities where the majority of the population in Sweden live has developed over time. I suggest that more variables are studied in a similar fashion as has been done in this thesis. That would perhaps shed light on how other forms of segregation has developed, for example ethnic segregation. How long term segregation trends develop, and what process lies behind them, should also be studied in an international context. One difficulty with doing so, however, could be low availability of temporally, and spatially, homogenously gathered data. Lacking such data limits the researcher to make assumptions and using different interpolation and imputation methods.
8. References

8.1 Official documents, motions, propositions and reports


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8.2 Articles and books


8.3 Data sources

8.3.1 Statistical yearbooks


Stockholms Stadsledningskontor. (2017). *Statistik årsbok för Stockholm*. [Analogue data tables]. Statistics produced by Sweco Society AB commissioned by the city of Stockholm. Retrieved from: [http://statistik.stockholm.se/attachments/article/38/Statistisk%20%C3%83%C2%A5rsbok%20%C3%83%C2%B6r%20Stockholm%202017.pdf](http://statistik.stockholm.se/attachments/article/38/Statistisk%20%C3%83%C2%A5rsbok%20%C3%83%C2%B6r%20Stockholm%202017.pdf)
9. Appendix

Table 1: Information of when parishes were created or broken out of existing parishes.

<table>
<thead>
<tr>
<th>Parishes</th>
<th>Year</th>
<th>Type</th>
<th>From</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spånga</td>
<td>1949</td>
<td>New</td>
<td>-</td>
</tr>
<tr>
<td>Essinge</td>
<td>1955</td>
<td>Broken out</td>
<td>Bromma</td>
</tr>
<tr>
<td>Västerled</td>
<td>1955</td>
<td>Broken out</td>
<td>Bromma</td>
</tr>
<tr>
<td>Farsta</td>
<td>1957</td>
<td>Broken out</td>
<td>Enskede and Brännkyrka</td>
</tr>
<tr>
<td>Skarpnäck</td>
<td>1957</td>
<td>Broken out</td>
<td>Enskede</td>
</tr>
<tr>
<td>Vantör</td>
<td>1957</td>
<td>Broken out</td>
<td>Brännkyrka</td>
</tr>
<tr>
<td>Hägersten</td>
<td>1957</td>
<td>Broken out</td>
<td>Brännkyrka</td>
</tr>
<tr>
<td>Hässelby</td>
<td>1962</td>
<td>Broken out</td>
<td>Spånga</td>
</tr>
<tr>
<td>Skärholmen</td>
<td>1969</td>
<td>Broken out</td>
<td>Hägersten</td>
</tr>
<tr>
<td>Vällingby</td>
<td>1974</td>
<td>Broken out</td>
<td>Spånga</td>
</tr>
<tr>
<td>Kista</td>
<td>1980</td>
<td>Broken out</td>
<td>Spånga</td>
</tr>
</tbody>
</table>

Data source: Skatteverket (2019).

Figure 18: Rate of inflation, calculated by dividing the CPI-value for each year with the previous year. Data source: Statistics Sweden, 2019.
Figure 19: Total population in absolute numbers for each area from summarizing people from all age groups in different parishes by city area groups.