Spatial knock-on effects in urban policies: ‘old’ theories and new research

Paper for the ENHR-conference
European Network for Housing Research
International Housing conference
Reykjavik 29th June-3th July 2005
Iceland

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ABSTRACT
Area-based urban policies show, besides some clear advantages, also several disadvantages. One of the problems is a so-called spatial knock-on effect where the effect of an area-based policy causes a side-effect for another area than the area involved in the policy. Spatial knock-on effects have not been on top of the research agenda lately. In order to learn more about the effectiveness of area-based urban policies this should be changed. Therefore, the aim of this paper is to review a number of more classical lines of research and some more recent models of urban change to describe which elements can be helpful in explaining spatial knock-on effects. The empirical evidence draws on two case studies in two Dutch cities; the city of Groningen and the city of Rotterdam. The two case studies focus on the perception of residents concerning the displacement of problems. It appears that residents can be quite aware of a displacement of problems, the origin areas of these problems and the relationship with the implementation of area-based urban policies. At the end of the paper we aim to draw some conclusions for future research on the side effects of area-based urban policies.

1. Introduction

Nowadays, urban policies are often area-based. This means that policies generally aim at a number of delimited areas within the city. Advantages of such area-based policies are manifold: investments can be channelled to the areas most in need and a strong legitimisation for such policies is often the case, because the effects of the investments are in many cases clearly visible. Area-based policies often go hand in hand with different kinds of partnerships, in which the local government collaborates with, for example, housing corporations and private companies. In most cases also inhabitants of the area are involved in the policies. This enhances, again, the legitimisation of the policy, it may enhance social capital of the participants and increase the capacity of local institutions (Andersen, 2001; Andersen & Van Kempen, 2003).

However, area-based policies also have clear disadvantages. Because only a few areas are targeted, problems in other areas remain unsolved. When, for example, a neighbourhood suffers exceptionally from criminal activities, the area may be included in an area-based urban policy, in order to solve this problem. But an adjacent neighbourhood, with maybe only slightly less crime, may not be targeted. An area-based policy also assumes that problems should be attacked locally. Often, however, causes of problems cannot be found on the neighbourhood level, but originate from urban, regional, national or even international levels. This might imply that solutions sought after at the neighbourhood level may not be found, which finally leads to an unsuccessful policy (Andersen, 2001).

One of the most significant problems with area-based policies are the so-called spatial knock-on effects\(^2\). Spatial knock-on effects are effects of an area-based policy for other areas then the area involved in the policy. Two examples may illustrate this possible effect:

- When crime is attacked in one area by more surveillance of police officers, there is a fair chance that crime figures go down in that area. But this does not necessarily mean that crime rates go down in the city as a whole. Criminals may just relocate their activities to an adjacent area.

\(^1\) This research has been financed by the Dutch National Council of Scientific Research (NWO) and the Knowledge Centre for Large Cities (KCGS) in the Netherlands.

\(^2\) Spillover effect is a term that is also used to indicate this phenomenon. Later we will explain why we prefer the term spatial knock-on effects.
When neighbourhoods are restructured with the aim of creating a more diverse population, a policy that implies a change from an area with inexpensive social rented dwellings towards an area with more expensive owner-occupied dwellings may very well serve this goal for that area. The poorer segments of the population are, however, forced to relocate to another affordable dwelling which might lead to new concentrations, elsewhere in the city.

Spatial knock-on effects have not been on top of the urban research agenda lately. In our opinion this should be changed. Spatial knock-on effects of policies should be more prominent, because when policies result in displacement of urban problems rather than in real solutions, the legitimisation of the policies may be under fire. We think that one of the reasons of the lack of attention for these side-effects of urban policies is the lack of theoretical background on this phenomenon.

The main aim of this paper is to find out which theoretical notions of urban development theories can be used to explain the character of spatial knock-on effects. We will review a number of more classical lines of research and more recent models of urban change and decline to find out how they can help explaining knock-on effects. In section 5 we will briefly refer to some recent case studies in the Netherlands, in which residents were asked about the displacement of problems into their neighbourhood. The aim of this part of the paper is to identify the possibilities and drawbacks of research into the theme of spatial knock-on effects. Based on the theoretical and empirical part of this paper, we will try to formulate some ideas for further research in the conclusions. In the next section we will first describe the phenomenon of spatial knock-on effects in more detail.

2. Spatial knock-on effects in the urban geography literature

Spatial knock-on effects have never been very prominent in urban geography literature. Two other terms have figured in this literature every now and then: spillover effect and displacement effect. Researchers in the field of economic geography have used a related term: externalities. In this section we will briefly review these terms.

Spillover effects can be defined as effects of something in one area on another area (Cox, 1972). This ‘something’ can be a physical structure (for example a building casting a shadow over the adjacent area), it can be the effect of a physical structure (for example gases from an industrial plant that come down from the air miles further away), and it can be the spatial consequence of an action or policy. Spillover effects can be positive as well as negative. Positive spillover effects can be defined as advantages of an action or development in one area for another area. For example: when a museum is built in one area, it may attract visitors who will also do some shopping or go out for dinner in an adjacent area. Spillover effects can also be negative. The same museum may lead to congestion and parking problems when all visitors arrive by car. The term spillover effect is not only used in urban geography, but also in studies in the field of environmental science.

The term displacement effect is often used in relation to studies in the field of housing and residential mobility. Gentrification and urban renewal policies may result in a situation that low-income households are forced to move to another area, because only there affordable housing is available (Shill et al., 1983; Palen &

Another reason could be that those who are responsible for area-based urban policies are just not interested in all kinds of side-effects, because such knowledge might be detrimental to success stories.
The term is used in a quite specific way and refers to households who are forced to move out of their dwelling. This often causes a concentration of those households in another part of the city.

The concept of *externalities* is mainly used within economics and economic geography. It is defined as the (usually unintended) effects of one person’s actions on another, over which the latter has no control. Externalities can be either positive or negative and usually there is a distance decay in its extend and intensity. An example is of a neighbourhood environment with a couple of noisy households who disturb other neighbours. This may have an effect on property values in the neighbourhood (Johnston et al., 2000).

We prefer to use the term spatial knock-on effects, because to our opinion the terms mentioned above all have their problems. Spillover effect is a term that can be used in many circumstances and does not have to be related to policy effects. The same holds for the term externalities. Displacement effects, on the other hand, are only applicable to studies in the field of housing and residential mobility. With the term *spatial knock-on effects* we want to stress that a development in an area is the consequence of a policy carried out in another area. The policy is generally aimed at improving a situation in the targeted area, but it may have negative as well as positive effects in another area. The effect of the policy in the not-targeted area is often not foreseen and definitely not meant as a purposively action.

When analysing spatial knock-on effects it is important to pay attention to the *spatial scale* of the effects. Scale refers to the extent of the area involved in the knock-on effects. Effects of an area-based urban policy can occur within a very small area, for example an adjacent block or street, but it can also spread to a much larger area and even extend the city limits. Besides that, effects of an urban policy can be detected in an area located next to the origin area, or in an area that is much farther away. In addition, the effect may be felt on one specific location or on several locations.

On which spatial scale effects can be discerned and in which direction the spatial knock-on effects may go, will depend on a number of interrelated factors and developments, such as the character of the problem, the character of the policy, the character of the built environment and the characteristics of the urban population. In the conclusions of this paper we will elaborate on this a little further.

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4 We have also thought about using the term *waterbed effect*. In The Netherlands, policymakers sometimes use this term. The idea here is that a push on one side of the waterbed will cause a flow of water to another side of the bed. We do not use this term here, because we consider it as a term that is too mechanistic.
3. What can we learn from the traditional body of knowledge with respect to neighbourhood change?

In order to find the significance of urban development theories for the explanation of spatial knock-on effects in cities, we will start with some concepts that were first used in the human ecology approach. We will then focus on a more general body of knowledge that can be subsumed under the term behavioural approach, to be followed by research that focuses more on constraints and resources of households. The institutional approach is another important body of knowledge within the field of urban development theories that can be used for the explanation of spatial knock-on effects.

Human ecology
The structural analysis of neighbourhood change started with the human ecology approach associated with the Chicago School (e.g., Burgess, 1925/1974; Park, 1925/1974; Hoyt, 1939; Harris and Ullman, 1945). Within this approach, two lines of research are most significant for the explanation of spatial knock-on effects. The first line is focused on the terms invasion, competition and succession, the second one is about filtering.

Especially in the work of Burgess (1925/1974), McKenzie (1925/1974) and Park (1925/1974) the terms invasion and succession are prominent. According to the Chicago School, the city develops through a competition for space. Burgess’ famous model of concentric urban rings is described as a result of invasion and succession: neighbourhoods change, because different kinds of actors compete for the available space. A move outward from the city centre is generated, because recent immigrants settle in the relatively inexpensive inner rings, while other, more successful groups move outwards. Those who can afford it, move out to better and more expensive places. Bassett and Short (1980, p. 11), summarize this process as follows: “A simple analogy is of a peddle dropped into a pool of water which creates concentric waves reaching out to the water’s edge”.

For the explanation of spatial knock-on effects it would be dangerous to use Bassett and Short’s peddle metaphor (that would be a too mechanistic approach). It would be equally dangerous to use the outcome in terms of concentric rings (Burgess). Clearly, the Chicago School was not very much focused on the role of the state in general and the effects of urban policies more specifically (Van Kempen, 2002). The basic terms of invasion, competition and succession, however, do have their value for research into spatial knock-on effects. These terms are related to the power people have (or do not have) to settle in some areas and not in others, temporarily or for a longer time. Neighbourhoods change as a consequence of the migration and residential mobility of various groups looking for a place to live. The inflow of people in an area causes the original households who can afford it to move to a nicer living environment. Power, mainly in terms of income, is an important asset. Moreover, the human ecology approach does clearly acknowledge that changes in one part of the city do influence other parts of that same city.

Another famous scholar of the Chicago School, Homer Hoyt, has reformulated Burgess’ model and described the city not as consisting of concentric rings, but of different sectors. Hoyt (1939) sees high-rent-paying households as the motor of spatial form: they seek out amenities, escape pollution and congestion near the centre and they take into account the significance of the location of work, waterways and railroad lines. Clearly, with these aspects in mind, a concentric

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5 It is not the aim of this paper to describe these theories elaborately. For more comprehensive descriptions, see for example Bassett & Short, 1980; Sarre et al., 1989; Van Kempen, 2002.
pattern would not fit. The households moving to a better place leave behind the less expensive dwellings that are then ‘invaded’ by poorer households. A sectoral pattern emerges, because some areas are more attractive then others. In other words: some areas are skipped. Attractiveness is not always related to the relative distance to the city centre, other factors play a role. Filtering is introduced here as a key term: households filter up (to better places and dwellings), while dwellings filter down (higher-income households are replaced by lower-income households) (Meulenbelt, 1997).

From Hoyt’s sectoral model and the concomitant process of filtering we can learn that in explaining spatial knock-on effects we should be careful to predict the effects to occur automatically in adjacent areas. Adjacent areas can be skipped, because they appear to be, as it were, less vulnerable. An example can make this clear: demolition in a neighbourhood may force poor people to move to another place. Adjacent neighbourhoods may be too expensive for these forced movers. This forces them to skip that area and to look for a home much further away from the targeted area. Spatial knock-on effects of urban policies may thus skip some areas and may become evident in areas that are located further away from the areas where the policy has been carried out.

Tipping points
The models of Burgess and Hoyt consider an influx of new residents in an area to cause the original residents to move to another area. The term tipping point relates to this movement and refers to a point when new residents actually take over the neighbourhood and replace the original residents.

Schelling (1971) defines a tipping point as the point at which the inflow of new inhabitants of an area causes an outflow of original inhabitants of the area. According to Schelling, the value of this tipping point may differ between population groups: different people have different ideas about the ideal population mix of an area. Households decide to move when the population mix starts to deviate too much from their personal ideal situation.

Schelling’s ideas are closely related to the concepts of invasion, succession and filtering. From his work it becomes clear that spatial knock-on effects may occur only after some time, particularly when certain thresholds are reached. It is important to realise that these thresholds may differ for each population group, maybe even for each person, and for each spatial and temporal context. The influx of a number of poor or minority ethnic households, may, for example, be tolerated in one neighbourhood, city or country, but may be considered as a very undesirable development at another place, causing immediate moves of the original population.

Behavioural models
Since the 1970s it has been realised that the behaviour of individuals and households can have major effects on urban divisions. Behavioural models generally focus on the demand side of the housing market. Household characteristics are seen as major determinants of housing (and locational) preferences (Adams & Gilder, 1976; Clark et al., 1986). Phases in both the household and labour market career influence the household’s size and its preferred type of dwelling and place to live (Rossi, 1955; Speare et al., 1975; Stapleton, 1980). Moving house is definitely not only an economic issue, but also, or even more, a social issue. Moreover, housing and locational preferences are not only determined by economic variables, but they are at least partly determined by social relations people have in the area (Varady, 1980). Neighbourhoods can have a symbolic value for inhabitants that can be a strong determinant of the decision to move, for example, the decision to improve one’s present area of living (see also Firey, 1945).

From this approach it becomes evident that, in explaining spatial knock-on effects, the characteristics of households and the choices those households make
should not be overlooked. A policy does not mechanistically engender spatial knock-on effects: people are always involved, be it burglars who seek out a ‘safer’ area for burglary or car thefts or households who start to look for a better place to live. From this approach it also becomes clear that neighbourhoods do not necessarily develop according to a fixed pattern, they can develop along different paths. Inhabitants themselves can influence the direction of development. When they organize to make the neighbourhood a better place to live, the development of such an area may be different to a situation in which many inhabitants decide to move. People living in neighbourhoods with a strong social cohesion may well be able to form, virtually or in real terms, a kind of barrier for new people or problems to move in, thus inhibiting the knock-on effects affecting their areas. The existence of civil neighbourhood watches may for example prevent criminals from choosing that particular area for their illegal activities or may prevent drug addicts from using their drugs in the streets of that area.

**Constraints and resource in the neo-Weberian approach**

Choices always take place in an environment of constraints. This simple idea is the basis of Rex and Moore’s *Race, Community and Conflict* (1967), which is generally seen as the beginning of the neo-Weberian approach in housing research. This work is grounded on the idea that housing, and especially desirable housing, is a scarce resource and that different groups are differentially placed with regard to access to these dwellings. People are distinguished from one another by their strength in the housing market (Rex, 1968) and this causes better or worse possibilities to live at one place or another.

Different resources of households can be identified (see Van Kempen and Özüekren (1998) for a more elaborate overview). Financial resources refer to income, security of income, and capital assets. Cognitive resources include education, skills, and knowledge of the housing market. Political resources refer to the political power people yield, either formally or informally. Social resources refer to the contacts people have, which may help them to find suitable housing and places to live. Even the present housing situation can be seen as a resource. All these resources are highly influential in explaining the possibilities of households in the housing market and therefore form an important part of the explanation of spatial patterns within cities (Van Kempen, 2002).

Research into the spatial knock-on effects of urban policies should take account of the resources households have and the constraints households and individuals face. The specific location to which people will be able to move will largely depend on the resources people do or do not have. Households with a lower income will generally end up somewhere else than those with higher incomes. Those with a better knowledge of the housing market are maybe able to move to better place than those who don not know their way. Social relations of people may direct the move to a specific area, for example to those places where family, friends and acquaintances live.

**Institutional approaches**

Institutional approaches focus explicitly on the role of the state as one of the major explanations of urban development. The state, and its institutions, can have an enormous influence on, for example, the supply of dwellings, in terms of quantity, quality and location, with respect to allocation of these dwellings and on the income position of households. Declining incomes, for example as a consequence of a fiercer tax regime or deductions of state-dependent incomes for the unemployed, the handicapped or the pensioners, may lead to forced moves and new spatial concentrations in other parts of the city. Austerity programmes may lead to lower subsidies for housing and, therefore, to fewer affordable dwellings to be built or less maintenance in the older stock, which again influences residential patterns of households. Local governments may decide to allocate dwellings in a
neighbourhood only to certain kinds of groups, such as non-immigrants or job-holders (Van Kempen, 2002). A decision, for example by a national government, to focus house building in new urban areas on high-priced owner-occupied housing will attract higher-income households and will prevent low-income households to find a home in those kinds of areas.

From the institutional point of view we should learn that in explaining spatial knock-on effects the rules, regulations and decisions that originate from various state levels should be taken into account. When we want to explain the character, scale and direction of knock-on effects, we should have at least information on the character of the supply of the dwellings in general and the location of several types of dwellings more specifically, the allocation rules (who may enter a dwelling, who is excluded), and the determinants of the income position of households.

An important stand of research should be added here. Within the institutional approach, the managerialist approach of Pahl (1975, 1977) and Lipsky (1980) stresses the role of ‘managers’ and ‘gatekeepers’. Pahl suggests that social gatekeepers (like housing officers) can allocate resources according to their own implicit goals, values, assumptions and ideologies. This means that stereotypes and racism might influence their decisions (Tomlins, 1997). Studies in the United States have shown that real estate agents are primary information brokers and major agents of change (e.g., Galster et al., 1987; Turner and Wienk, 1993). Attention for the role of these managers and gatekeepers can be crucial when we want to try to explain spatial knock-on effects of urban policies. Presumably the decisions of even only one manager can change the direction of the effects. When neighbourhoods are virtually closed for a certain group, this may influence directly the opportunities of households belonging to that group. The effect for the neighbourhood itself can be a change in household composition, for example when only higher income households have the opportunity to move to that neighbourhood.

4. What can we learn from more recent models of urban development?

For the explanation of neighbourhood changes, several more or less comprehensive models have been developed that incorporate a large or smaller number of concepts that have been dealt with earlier in this paper. In this section we pay attention to two of these models. The first model is that by William Grigsby et al. (1987), who have focused on the dynamics of neighbourhood change and decline. The second model is a model that is recently developed by Hans Skifter Andersen in his book Urban Sores (2003). Other models do exist, of course, but because of the available space in this paper, we have limited ourselves. Besides, we think that other models will not give us more and better ideas about the explanation of spatial knock-on effects.

Grigsby’s et al. neighbourhood dynamics
The basic idea of Grigsby et al. (1987) is that a change in one or more social and economic variables causes households to make decisions with respect to the maintenance of their dwelling and with respect to moving decisions. These decisions then alter the character of the neighbourhood, for example because some people start to improve the area or their dwelling, while some other people don’t. Still others may decide to move, leaving vacant dwellings for new groups. These changes may then feed back on one or more of the social and economic variables with which the whole process started. What are these social and economic variables? According to Grigsby et al. the number of households, household size and composition, income, societal values and attitudes, location and type of business investment and public sector policies can be included here. Especially the influx of low-income households is seen as a crucial determinant of neighbourhood change: this starts a process of succession, in which the importance of parts of the housing stock in the area changes. Earlier, Burgess used the same term in relation
with the influx of immigrants in the inexpensive inner ring, which caused the original inhabitants to move outward from the city centre.

Of course some critique on this model is possible, but the idea that especially an influx of low-income households is crucial, can give us important clues for explaining spatial knock-on effects. When poor people have to move house, for example because their dwelling has been demolished as a consequence of a deliberate area-based policy, they probably settle in an area in which dwellings are available and affordable. This settlement process can then, according to Grigsby et al., easily lead to knock-on effects in this particular area, for example when the original inhabitants decide to move house. In other words, Grigsby et al. teach us that spatial knock-on effects can easily be converted to a domino effect: the falling of one stone causes other stones to fall.

The idea of an influx of low-income households can easily be replaced by an influx of ethnic minority households. It is a well-known conclusion from many investigations that such an influx causes an outflow of the original inhabitants. Schelling’s notion of the tipping point already refers to this, but Grigsby et al. make us more aware of the mechanism behind this.

Andersen’s Urban Sores
Andersen’s (2003) theory starts with the idea that households do have different preferences for living in a particular neighbourhood but that in general some neighbourhoods are seen as more attractive than others. The term ‘exclusion of places’ is rather central in his theory: some places are excluded, because for one or more reasons they are not attractive to anymore. Andersen identifies between interior and exterior processes of exclusion. Interior processes refer to the specific circumstances inside the neighbourhood. A combination of problems, for example changing norms for using the neighbourhood and increasing feelings of insecurity make the neighbourhood less attractive and influences its reputation. Exterior processes concern, for example, the connection between the neighbourhood and the rest of the city. Inhabitants of a neighbourhood that suffers from several problems and has a bad reputation can decide to move. Those households are often replaced by people with a lower social-economic standard, which again accelerates the process of deprivation. This exclusion process can be a kind of independent path, diverging from the development of the rest of the city.

From this we learn that neighbourhoods can be drawn into a downward spiral which operates independently from social and economic processes within the city as a whole. Spatial knock-on effects logically occur in those areas that are already deprived, have a bad reputation or have various combinations of problems. Andersen adds that the exclusion process of a place is a dynamic process which tends to speed up after a certain point is reached. The clear (negative) notion here is quite simple: problematic areas attract problems.

5. Spatial knock-on effects in practice

Empirical research on spatial knock-on effects has not been carried out very frequently and systematically. In this section we will focus on two research projects that have recently been carried out in the Dutch cities of Groningen and Rotterdam. They will serve as an example of the possibilities of research on this topic and will be used to identify strengths and weaknesses of this kind of research. In both cities, a number of policymakers and other stakeholders have been interviewed. Also, a survey among inhabitants in a number of neighbourhoods has been carried out. The inhabitants were asked to mention what they perceive the most problematic aspects of their neighbourhoods and to indicate if they think if these problems are the consequence of policies carried out in other areas of the same city. In this section we focus on the most important results from both surveys.
I: the case of Rotterdam, the Netherlands

In Rotterdam, the district of Feijenoord has been examined. This district counts about 72,000 inhabitants and 33,000 dwellings (COS, 2005). Besides the area known under the name of Kop van Zuid\(^6\), the district mainly consists of pre-WWII neighbourhoods, in which a lot of urban renewal projects have taken place in the past few years. Most of the dwellings are in the social rented sector and, consequently, have a relatively low rent. The majority of the dwellings consist of apartments and buildings with three of four storeys (Boelhouwer & Hoekstra, 1998). Within the city of Rotterdam, Feijenoord can be regarded as a problem area. The area suffers from problems like crime, vandalism, pollution, unemployment, and problems between ethnic minorities (COS, 2005). These problems can be divided into economic problems such as unemployment, social problems including feelings of insecurity, and more physical problems like pollution. A survey was carried out in three different neighbourhoods of the district (Hillesluis, Katendrecht and Kop van Zuid).

Respondents were asked what they considered the biggest, 2\(^{nd}\), and 3\(^{rd}\) biggest problem in the neighbourhood. Many of the 146 respondents mention the feelings of insecurity (16.4%), vandalism and criminality (15.1%), problems caused by youth (12.9%), pollution (14.9%) and bad dwellings (11.8%) as their biggest problem. These are all social and physical problems. This also applies for the problem they mention as 2\(^{nd}\) and 3\(^{rd}\) biggest problem. Economic aspects, such as unemployment (1.9%) and level of education (0.5%) were hardly mentioned and seem to play a relatively unimportant role for inhabitants.

To find out about spatial knock-on effects, respondents were asked if they think that the problems in their areas originate from other neighbourhoods. The answers make clear that many inhabitants of Feijenoord indeed hold other neighbourhoods responsible for the problems in their own neighbourhood (Table 1). This especially counts for problems which they earlier mentioned as being the biggest problem in the neighbourhood, such as the feeling of insecurity, pollution and vandalism and criminality. Other problems which they perceive as originated from other areas, include problems caused by youth and addicted people and prostitution. As can be seen, these are mainly social problems. In relation with more economic problems, respondents do not really consider this a displacement of problems from other neighbourhoods.

Respondents were also asked which neighbourhood in the district they saw responsible for the knock-on effects. Respondents indicated that changes in several neighbourhoods (Afrikaanderwijk, Bloemhof, Feijenoord and Hillesluis) should be held responsible for the knock-on effects. Those neighbourhoods are seen as problem areas within the Feijenoord district. Therefore, it is not surprising that a lot of residents perceive especially these neighbourhoods as the origin areas of their problems. Also, these neighbourhoods get most attention from the local government of Rotterdam. By trying to reduce problems in these problem areas, it is not unlikely that problems tend to displace.

Furthermore, respondents were asked which groups of inhabitants increased during the last two years. According to the respondents, there has been an increase of ethnic minorities (28.1%), youngsters (21.1%) and low income groups (18.5%). These people mainly moved to their neighbourhood from Afrikaanderwijk, Bloemhof and Hillesluis. It is clear that, according to the respondents, many of the newcomers in Feijenoord originate from neighbourhoods which they had indicated as responsible for the existence of various kinds of problems before. When the problems the respondents consider the biggest problem in the neighbourhood are

\(^6\) This means: Head of the South. The name relates to a piece of land in the Southern part of the city that extends (like a head) into the river Meuse. This area was a former harbour area, but has now been converted into an area with, in many cases rather expensive, dwellings.
related to the groups of inhabitants that increased during the last two years it turns out that respondents think that the feeling of insecurity has increased mostly as a consequence of the influx of low income groups \((p=0.014, \text{Cramer's } V=0.269)\). When looking at vandalism and criminality it becomes clear that respondents relate these problems also to a large extent to the influx of low income groups \((p=0.000, \text{Cramer's } V=0.463)\). In relation with problems with youth it becomes clear that low income groups and ethnic minorities are held responsible for the perceived problems with youth \((p=0.000, \text{Cramer's } V=0.528)\). This makes clear that respondents associate the biggest problems in their neighbourhood with the influx of low income people.

Another question of the survey contained the statement that problems had moved to their neighbourhood because problems in surrounding areas were treated harder. The results show that 35.6 per cent of the respondents agree and 37 per cent agree partially. This means that the majority of the respondents think that problems in their own neighbourhood are caused elsewhere, because problems are tackled harder in surrounding areas.

Table 1: Do you think these problems emerge in your neighbourhood as a consequence of displacement from other neighbourhoods?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Yes (%)</th>
<th>Maybe (%)</th>
<th>No (%)</th>
<th>Don't know (%)</th>
<th>Abs. total (100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty</td>
<td>19.9</td>
<td>18.5</td>
<td>58.2</td>
<td>3.4</td>
<td>146</td>
</tr>
<tr>
<td>Unemployment</td>
<td>18.5</td>
<td>26.7</td>
<td>46.6</td>
<td>8.2</td>
<td>146</td>
</tr>
<tr>
<td>Level of education</td>
<td>16.4</td>
<td>20.5</td>
<td>54.8</td>
<td>8.2</td>
<td>146</td>
</tr>
<tr>
<td>Welfare recipients</td>
<td>16.4</td>
<td>21.9</td>
<td>53.4</td>
<td>8.2</td>
<td>146</td>
</tr>
<tr>
<td>Feeling of insecurity</td>
<td>50.0</td>
<td>44.5</td>
<td>5.5</td>
<td>0.0</td>
<td>146</td>
</tr>
<tr>
<td>Vandalism and criminality</td>
<td>50.0</td>
<td>39.0</td>
<td>11.0</td>
<td>0.0</td>
<td>146</td>
</tr>
<tr>
<td>Problems caused by youth</td>
<td>52.1</td>
<td>41.1</td>
<td>6.8</td>
<td>0.0</td>
<td>146</td>
</tr>
<tr>
<td>Drugs and prostitution</td>
<td>25.3</td>
<td>53.4</td>
<td>19.2</td>
<td>2.1</td>
<td>146</td>
</tr>
<tr>
<td>Noise</td>
<td>29.5</td>
<td>28.1</td>
<td>36.3</td>
<td>6.2</td>
<td>146</td>
</tr>
<tr>
<td>Lack of police intervention</td>
<td>21.9</td>
<td>27.7</td>
<td>46.6</td>
<td>4.1</td>
<td>146</td>
</tr>
<tr>
<td>Cultural differences</td>
<td>22.6</td>
<td>34.2</td>
<td>41.1</td>
<td>2.1</td>
<td>146</td>
</tr>
<tr>
<td>Image of the neighbourhood</td>
<td>30.8</td>
<td>39.0</td>
<td>30.1</td>
<td>0.0</td>
<td>146</td>
</tr>
<tr>
<td>Bad dwellings</td>
<td>19.9</td>
<td>21.2</td>
<td>52.1</td>
<td>6.8</td>
<td>146</td>
</tr>
<tr>
<td>Bad maintenance of dwellings</td>
<td>23.3</td>
<td>23.3</td>
<td>46.6</td>
<td>6.8</td>
<td>146</td>
</tr>
<tr>
<td>Pollution</td>
<td>37.0</td>
<td>39.7</td>
<td>18.5</td>
<td>4.8</td>
<td>146</td>
</tr>
<tr>
<td>Lack of greenery</td>
<td>14.4</td>
<td>16.4</td>
<td>61.0</td>
<td>8.2</td>
<td>146</td>
</tr>
<tr>
<td>Lack of facilities</td>
<td>13.0</td>
<td>21.2</td>
<td>63.7</td>
<td>2.1</td>
<td>146</td>
</tr>
<tr>
<td>Unsafe traffic situations</td>
<td>13.0</td>
<td>15.1</td>
<td>69.9</td>
<td>2.1</td>
<td>146</td>
</tr>
</tbody>
</table>

Source: Vervloedt (2005)

Finally, it has been possible to confront the opinion of the inhabitants in the neighbourhood (the respondents in the survey) with the opinion of representatives of local government. While the inhabitants clearly see the existence of spatial knock-on effects and explicitly attach a negative value to these effects, the representatives of local government do recognise these effects too, but consider it as a positive effect of their area-based urban policy. As a consequence of this policy, problems do no longer concentrate in problem areas, but are now evenly spread over the entire district and in some cases even over the entire city of Rotterdam. They prefer the term *thinning* over the term knock-on effect. It is their opinion that everybody who wants to live in a big city, has to deal with big city problems to some extent. In our opinion this erodes the legitimisation of the policy and we do think that good evaluations of the effect of area-based urban policies are necessary. If a problem becomes less severe by spreading over a larger area, the
effect may be that more people have to deal with it than before. Besides that, the household decision to move is influenced more by the perception of perceived problems in the neighbourhood than on actual facts about, for example criminality rates. So, trying to solve problems in cities by making them spread over a larger area doesn’t have to lead to solving the problem according to the inhabitants of the city.

II: the case of Groningen, the Netherlands

Groningen, a city in the north of the Netherlands, counts about 180,000 inhabitants and is with respect to population size comparable to cities like Lille and Reykjavik. Like other big cities in the Netherlands, Groningen suffers from economic, social and physical problems. To deal with these problems, the local government has decided for an approach called the Policy of restructuring twelve neighbourhoods. This policy clearly focuses on the most problematic areas of the city in social, economic and physical terms. Oosterparkwijk and Vinkhuizen are two neighbourhoods that are part of this policy. Oosterparkwijk counts about 10,000 inhabitants and has already been almost completely restructured in physical terms. Vinkhuizen has about the same number of inhabitants and its housing supply mainly consists of buildings with three or four storeys and high rise buildings.

A survey was carried out in three areas outside Oosterparkwijk and Vinkhuizen. Beijum-East lies in the north of the city and was built in the 1970s. The neighbourhood has about 7,000 inhabitants living in 3,100 dwellings (70% rental sector, 30% owner-occupied). Korrewegwijk also lies in the north of the city, adjacent to the city centre. The neighbourhood is a popular place to live for students and counts about 13,000 inhabitants and 6,600 dwellings (26% rental sector, 74% owner-occupied). The neighbourhood was built in the 1920s and is characterized by different sub-neighbourhoods, each with specific characteristics. Selwerd is a neighbourhood in the north-west of Groningen and counts about 6,400 inhabitants and 2,700 houses (75% rental sector, 25% owner-occupied). The neighbourhood was built in the 1960s.

Vandalism and criminality seem (14.3%) to be the most severe problems in the areas, but also feelings of insecurity (12.4%) and problems caused by youth (11.4%) are frequently mentioned (Table 2). According to the residents, the image of the neighbourhood (43.3%) and problems with pollution (42.4%) are often mentioned as a problem. Remarkable is that these are all social and physical problems, which was also the case in Rotterdam.
Table 2: Degree of problems according to the inhabitants of Beijum-East, Korrewegwijk and Selwerd.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Severe problem</th>
<th>Problem</th>
<th>No problem</th>
<th>Don’t know</th>
<th>Abs. total (=100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty</td>
<td>3.1</td>
<td>27.4</td>
<td>36.8</td>
<td>32.7</td>
<td>95</td>
</tr>
<tr>
<td>Unemployment</td>
<td>8.4</td>
<td>26.3</td>
<td>33.7</td>
<td>31.6</td>
<td>95</td>
</tr>
<tr>
<td>Level of education</td>
<td>8.2</td>
<td>22.4</td>
<td>40.8</td>
<td>28.6</td>
<td>98</td>
</tr>
<tr>
<td>Welfare recipients</td>
<td>8.2</td>
<td>23.7</td>
<td>26.8</td>
<td>41.2</td>
<td>97</td>
</tr>
<tr>
<td>Feeling of insecurity</td>
<td>12.4</td>
<td>26.8</td>
<td>50.5</td>
<td>10.3</td>
<td>97</td>
</tr>
<tr>
<td>Vandalism and criminality</td>
<td>14.3</td>
<td>33.7</td>
<td>39.8</td>
<td>12.2</td>
<td>98</td>
</tr>
<tr>
<td>Problems caused by youth</td>
<td>11.4</td>
<td>32.3</td>
<td>43.8</td>
<td>12.5</td>
<td>96</td>
</tr>
<tr>
<td>Drugs and prostitution</td>
<td>10.2</td>
<td>21.4</td>
<td>53.1</td>
<td>15.3</td>
<td>98</td>
</tr>
<tr>
<td>Noise</td>
<td>9.4</td>
<td>25</td>
<td>57.3</td>
<td>8.3</td>
<td>96</td>
</tr>
<tr>
<td>Lack of police intervention</td>
<td>5.3</td>
<td>16.8</td>
<td>47.4</td>
<td>30.5</td>
<td>95</td>
</tr>
<tr>
<td>Cultural differences</td>
<td>5.2</td>
<td>22.9</td>
<td>56.3</td>
<td>15.6</td>
<td>96</td>
</tr>
<tr>
<td>Image of the neighbourhood</td>
<td>8.2</td>
<td>43.3</td>
<td>35.1</td>
<td>13.4</td>
<td>97</td>
</tr>
<tr>
<td>Bad dwellings</td>
<td>4.2</td>
<td>17.7</td>
<td>60.4</td>
<td>17.7</td>
<td>96</td>
</tr>
<tr>
<td>Bad maintenance of dwellings</td>
<td>8.2</td>
<td>21.4</td>
<td>57.1</td>
<td>13.3</td>
<td>98</td>
</tr>
<tr>
<td>Pollution</td>
<td>9.1</td>
<td>42.4</td>
<td>43.4</td>
<td>5.1</td>
<td>99</td>
</tr>
<tr>
<td>Lack of greenery</td>
<td>5.2</td>
<td>8.2</td>
<td>81.4</td>
<td>5.2</td>
<td>97</td>
</tr>
<tr>
<td>Lack of facilities</td>
<td>1.0</td>
<td>11.5</td>
<td>81.3</td>
<td>6.2</td>
<td>96</td>
</tr>
<tr>
<td>Unsafe traffic situations</td>
<td>5.9</td>
<td>20.6</td>
<td>66.6</td>
<td>6.9</td>
<td>102</td>
</tr>
</tbody>
</table>

Source: Rus (2005)

In the questionnaire the inhabitants of Beijum-East, Korrewegwijk and Selwerd were asked if they think that problems in their neighbourhood come up as a consequence of policy actions in other neighbourhoods (Table 3). One obvious result is that, for all aspects, most people don’t know if problems originate from other neighbourhoods. Compared to the Rotterdam case, only a very small number of inhabitants indicate that maybe or definitely problems have migrated from other areas. Several explanations for these very different results for Rotterdam and Groningen can be given:

- Inhabitants of the Rotterdam areas in general may be more aware of the spatial effects of policies in their areas.
- Inhabitants of the Rotterdam area may be more aware, because they themselves live in the areas close to the problematic areas, while respondents in the Groningen areas live further away.
- Spatial knock-on effects are stronger in Rotterdam.

In our opinion, the first two explanations seem more logical than the third one. The second one shows a clear distance-decay, where residents close to the targeted area are more aware of spatial knock-on effects than residents that live further away form the area where the policy is carried out.
Table 3: Do you think these problems come up in your neighbourhood as a consequence of displacement from other neighbourhoods?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Yes, no doubt</th>
<th>Maybe</th>
<th>No</th>
<th>Don't know</th>
<th>Abs. total (=100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty</td>
<td>7.5</td>
<td>13.8</td>
<td>31.9</td>
<td>46.8</td>
<td>94</td>
</tr>
<tr>
<td>Unemployment</td>
<td>9.6</td>
<td>12.8</td>
<td>30.8</td>
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<td>94</td>
</tr>
<tr>
<td>Level of education</td>
<td>9.6</td>
<td>11.7</td>
<td>30.8</td>
<td>47.9</td>
<td>94</td>
</tr>
<tr>
<td>Welfare recipients</td>
<td>11.7</td>
<td>13.8</td>
<td>26.6</td>
<td>47.9</td>
<td>94</td>
</tr>
<tr>
<td>Feeling of insecurity</td>
<td>10.6</td>
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<td>94</td>
</tr>
<tr>
<td>Lack of police intervention</td>
<td>1.1</td>
<td>14.9</td>
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<td>41.4</td>
<td>94</td>
</tr>
<tr>
<td>Cultural differences</td>
<td>11.7</td>
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<td>Image of the neighbourhood</td>
<td>12.5</td>
<td>15.4</td>
<td>31.7</td>
<td>40.4</td>
<td>104</td>
</tr>
<tr>
<td>Bad dwellings</td>
<td>2.1</td>
<td>8.5</td>
<td>55.3</td>
<td>34.1</td>
<td>94</td>
</tr>
<tr>
<td>Bad maintenance of dwellings</td>
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</tr>
</tbody>
</table>

Source: Rus (2005)

6. Discussion, conclusions and lessons for research

In the introduction we have stated that there is a surprisingly small research focus on the spatial knock-on effects of urban policies. Numerous evaluations of urban policies have been carried out in a large number of European countries, but hardly ever is there a systematic analysis of the side-effects of these policies. To our opinion, effects of policies could be better assessed when these side-effects are taken into account.

At least three reasons for the small attention for spatial knock-on effects can be mentioned. First, it could theoretically be the case that researchers, politicians and policymakers believe that these effects just do not exist or that they do not cause any problems, which was the case in Rotterdam. Second, it could be that politicians and policymakers are not interested in measuring these effects. The existence and identification of spatial knock-on effects can be very embarrassing and detrimental for success stories that may be told when the analysis of policy effects is limited to the targeted area only. This can be a reasonable explanation. The third reason is also plausible: spatial knock-on effects are difficult to measure. This is definitely true: sometimes it is even difficult to measure the direct effect of a policy (is a declining rate of unemployment an effect of a policy measure or of a booming economy?), let alone the indirect effects.

We strongly believe that more research on spatial knock-on effects is necessary if we want to have good evaluations of area-based urban policies. False conclusions may be drawn if the effects of such policies are only measured in the targeted areas. In the end, this may harm the legitimisation of that policy. In this paper we first have tried to find out which elements of existing theories could be helpful in constructing a theoretical framework for explaining these spatial knock-on effects. In brief, we think the following elements can be helpful:

1. **Invasion, competition and succession** – These concepts, originally the core concepts of the Chicago School, teach us that neighbourhoods change as a consequence of the inflow of people. In general, the new inhabitants differ from those who have left. In areas with many problems, high-income
households are generally replaced by households with lower incomes. Related to these concepts is the concept of filtering. The term is used to describe a dual process in which it is said that households filter up while dwellings filter down.

2. **Sectors in the city** – From the Chicago School we can also learn that spatial knock-on effects can skip certain urban areas because they are not vulnerable. Areas with high-priced dwellings will probably not attract low-income households who have to move because, for example, urban restructuring. The most extreme example that can probably be mentioned here is the gated community, which is sometimes literally surrounded by a wall.

3. **Tipping points** – They show us that spatial knock-on effects may occur only after some time, namely when a certain threshold is reached. These thresholds are context related.

4. **Behavioural models** – These models tell us that the behaviour of individuals has to be kept in mind because it is always people who react to spatial knock-on effects and who are able to influence the direction of the effects.

5. **Constraints and resources** – Resources, combined with the constraints households face, are of great importance in explaining spatial patterns in cities. Households can react differently to the same spatial knock-on effects because of their strength on the housing market.

6. **Institutional approaches** – This approach teaches us that the state and its institutions can influence the character, scale and direction of spatial knock-on effects. Besides, the role of all kinds of gatekeepers and managers can be of great importance here.

7. **Grigsby et al.** – They teach us that spatial knock-on effects can cause a domino effect. People may react to a knock-on effect, which may cause other people to react again. An influx of ethnic minority households can serve as an example.

8. **Andersen** – Related to the idea of the tipping point, Andersen teaches us that there seems to be a certain point after which a negative process speeds up. In this case the area becomes more and more vulnerable to effects from other areas.

From our empirical investigation in the cities of Rotterdam and Groningen we have learned a few additional things:

1. In Rotterdam we saw that respondents do perceive several problems that in their opinion originate from other neighbourhoods. Most of them point out that this has to do with policymakers who treat problems in surrounding areas more severe. It seems that policymakers themselves also recognize the effects, but attach a much more positive interpretation to them. This result makes clear that position matters: inhabitants may react differently than policymakers and it might very well be that other members of the policy community have diverse reactions, depending for example on their relation with the present government (part of the coalition or not). Further research should pay due attention to the position of the respondents and interviewees and should focus on the background of, especially, the political stakeholders.

2. From the Rotterdam case study we can learn that policymakers, while putting area-based urban policies into practice, not always aim at solving the problems. Instead, their aim can be to spread the problem over a larger area (thinning). For inhabitants of the city of Rotterdam their perception of the problems in their neighbourhood does not have to change or become more positive because of the actual thinning of the problem.

3. When comparing the results of the case studies of Rotterdam and Groningen, it has become clear that many inhabitants in Groningen do not seem very convinced that problems in their areas have arrived from other
neighbourhoods, while the overwhelming number of respondents in the Rotterdam areas do see the existence of spatial knock-on effects. This unexpected large difference is rather difficult to explain. It could be that the awareness of the inhabitants differs (this might be the case, because the Rotterdam urban policy has had large press coverage, even in the national press). It could also be the case that the Rotterdam respondents are more aware of the problems, because they live closer (or even in) the areas that are part of the area-based Big Cities Policy. The respondents from Groningen live elsewhere in the city. This makes us aware of the existence of a distance-decay. Respondents in both cities mention problems in their neighbourhood. Respondents in areas close to the targeted area are better able to indicate the origin of the problems than respondents who live further away. The perception about the origin areas of the problems in their neighbourhood is related to the distance to the targeted area in the policy.

4. From both case studies, it has become clear that surveying inhabitants of affected areas is probably insufficient to reach good results. This method should be complemented, not only with interviews, but also, where possible, with hard statistical data.

It is not very original to end a paper with the phrase ‘more research is needed’. However, we do believe that in this case this phrase is very appropriate.
References


Rus, A. (2005), Questionnaire Groningen


Vervoelotd, H. (2005), Questionnaire District Feijenoord, Rotterdam.