

# **RegioProjektCheck – New Instruments to Evaluate the Impacts of Housing, Industry and Retail Projects. Case Study: New Supermarkets and their Effects on Existing City Centres**

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## **1 ABSTRACT/THE REGIOPROJEKTCHECK APPROACH – MAJOR REGIONAL PROJECTS REQUIRE EARLY INTER-MUNICIPAL COORDINATION**

The regional tier for planning and approval occupies a central position in Germany's settlement and land development. It becomes involved when regional plans are drawn up at county level. However, it is at municipal level that the actual location of any new housing, industrial and retail schemes is determined. The impact of these new projects is often felt not only locally but regionally – both in a positive and negative sense, i.e. the effects in financial, transport, ecological and sometimes social terms are not limited to administrative boundaries of municipalities or even cities. In many cases they extend far beyond the municipalities' administrative boundaries and cause changes in the regional structure and in the development of closely intertwined cities and municipalities.

Great importance is given to the processes of consideration and negotiation, which have to a large extent been formalised in Germany, involving local stakeholders in politics, planning, the economy as well as citizens. However, as a rule, these processes are spatially limited to subspaces or technically restricted to specialist subjects. An overall view which considers different impacts on one another is often lacking or limited, at least at the time when decisions are made, i.e. before the actual development plan is adopted. This is where the RegioProjektCheck (RPC) applied research project comes in. RegioProjektCheck helps with the appraisal and assessment of both positive and negative effects of new residential areas, industrial zones and major retail projects from early on in the process. In-depth questioning of specific topics then leads to a higher-level assessment which equally examines economic, ecological and social aspects and so is able to influence planning decisions at an early stage. While the project's focus lies on the computation and illustration of regional effects, RegioProjektCheck can also provide the basis for considerations at municipal level, depending on the size of the municipality. The appraisal of impacts is achieved with relatively readily available data, is GIS-based and should, as a rule, work for Germany as a whole.

## **2 EMBEDMENT INTO SUSTAINABLE LAND MANAGEMENT, PROJECT TEAM AND PROJECT DURATION**

The research project is supported by the Bundesministerium für Bildung und Forschung (Federal Ministry of Research and Education) as part of the "Nachhaltiges Landmanagement" (sustainable land management) research programme in the period 2011 to 2014. It is a joint project in module B "Innovative Systemlösungen für ein nachhaltiges Landmanagement" (Innovative system solutions for sustainable land management) (cf: [www.nachhaltiges-landmanagement.de](http://www.nachhaltiges-landmanagement.de)). Furthermore, RegioProjektCheck is a joint research project with HafenCity Universität Hamburg (HCU) and the Institut für Landes- und Stadtentwicklungsforschung (ILS), Dortmund, in cooperation with the planning consultants Gertz Gutsche Rümenapp (GGR), Hamburg, and Raum & Energie, Wedel.

RegioProjektCheck seeks to provide a set of standardised tools that can be employed throughout Germany. It was developed in cooperation with two model regions to ensure that the toolbox is practicable and meets the requirements of relevant local stakeholders and, if need be, its content can be modified in order to achieve these goals. The "Landkreis Harburg" (federal state of Lower Saxony) borders on Hamburg in the south; the "Rheinisch-Bergischer Kreis" (North Rhine Westphalia) lies east of Cologne. Selection criteria for these model regions were their declared interest in the project and the fact that the regions were expanding and growing and thus were confronted with the development of new residential and industrial areas as well as large retail developments. Inclusion of local stakeholders took place with expert interviews and workshops in which the approach and intermediate results were then discussed with them. Additionally, an external expert panel was set up which was composed of representatives of municipal and regional planning authorities as well as promoters of the economy and representatives of the private sector.

### 3 REGIOPROJEKTCHECK – TOPICS AND FIELDS OF ACTIVITY

RegioProjektCheck was developed for housing, industrial and retail projects and seeks to support the process of opinion-forming during the early stages of a project when planning decisions are made (before the start of the actual development plan procedure). The target group for its application includes representatives from the municipal and regional administrations as well as representatives in the field of politics and the economy. RegioProjektCheck models and assesses municipal and regional impacts caused by new residential, industrial and retail developments and examines the following fields of activity: “municipal infrastructure cost”, “municipal income”, “impact on transport”, “energy consumption”, “area and ecology”, “accessibility” and “competitive locations of supermarkets” (see figure).

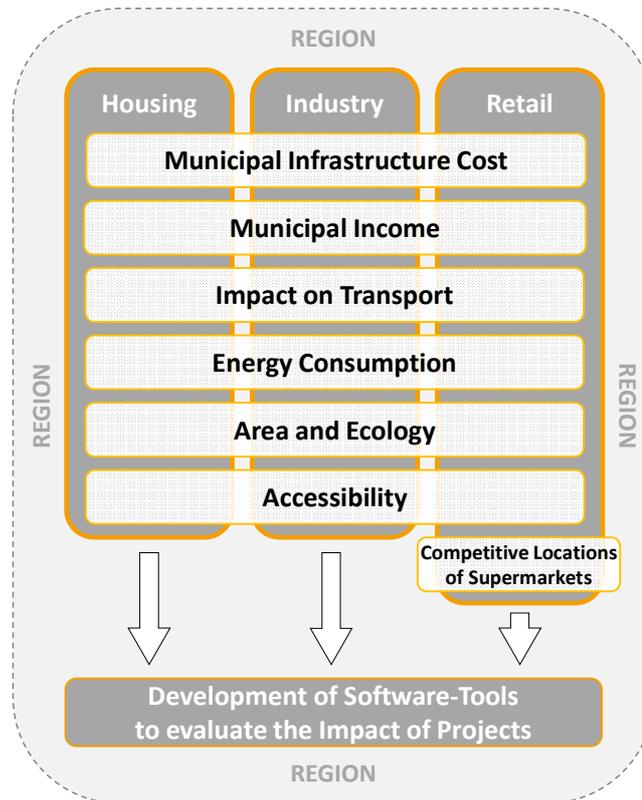


Fig. 1: RegioProjektCheck – Topics and fields of activity

RegioProjektCheck was designed as a GIS-based toolbox which can be used modularly (i.e. separately for each field) according to the local and regional possibilities and problems. Furthermore, users can test variants of the proposed projects – e.g. different sizes and locations – by modifying certain project parameters. This will promote discussion and consideration at municipal and regional levels during the early planning stages. The following section provides a detailed description of the content and methodology in the “competitive location of supermarkets” field.

### 4 FIELD OF ACTIVITY: COMPETITIVE LOCATION OF SUPERMARKETS

The locations of supermarkets and their effects on existing local suppliers are a continuous source of controversial discussion in Germany. Therefore, the focus of the RegioProjektCheck study is placed on the anticipated changes in absorption of purchasing power and the anticipated changes in turnover of existing businesses caused by a new supermarket. It is based on changes in shopping behaviour (purchasing power flows) which result from a new supermarket. The centres mainly affected are looked at, i.e. city centres, neighbourhood and local supply centres as well as important single supply locations within the municipality or nearby municipalities.

The model is based on a Germany-wide telephone survey of more than 4,000 households (approximately 10,500 people) making approximately 6,100 shopping transactions (first and second main shopping locations) in the contexts of different settlement cultures. In consideration of the competition among municipalities and regions, it was possible to deduce the probability of a household or person using a specific supermarket by taking into account the retail format and distance from home to supermarket (retention of

buying power, shown as exponential function). If the existing local purchasing power (consumer expenditure on food retailing is on average 2,560 euros per person and year, of which 84.6 percent are spent in supermarkets (cf: Statistisches Bundesamt (Ed) (2009)), own computations and updates) is included in the calculation, the assumed annual turnover for food products can be calculated for each location. The specific competition in the region is calculated on the basis of geo-referenced data input on the region's existing retail situation and, derived from it, the distance matrix between home (based on settlement cells of 250 x 250 metres edge lengths) and location of supermarkets.

The sample calculation for the establishment of a supermarket in the model region "Landkreis Harburg" comes up with the following catchment area for the new project, differentiated according to proportional absorption of purchasing power (see figure). It is based on the above assumptions about the absorption of purchasing power as a factor of population density, level of purchasing power and competition in a particular location.

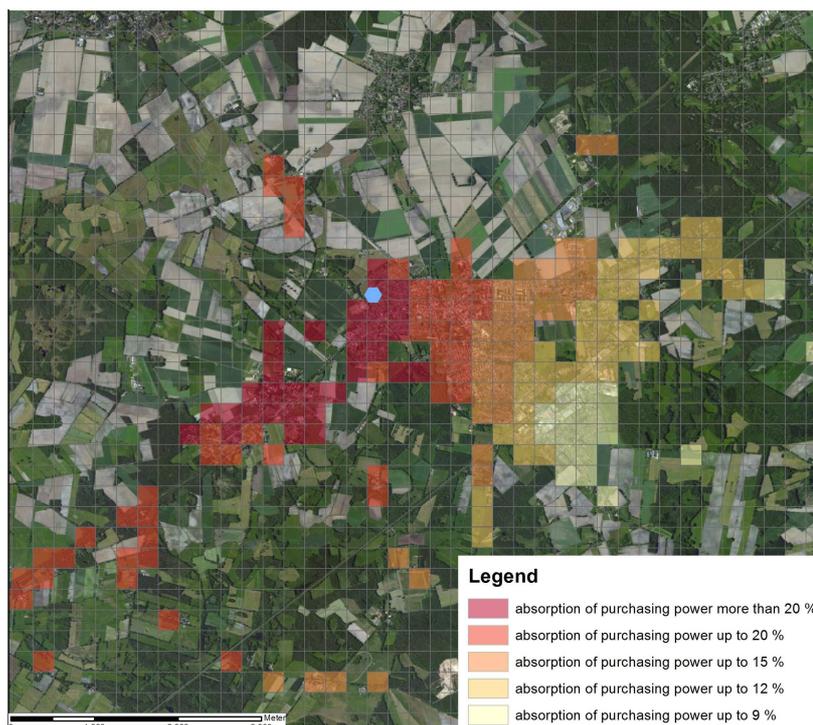


Fig. 2: New supermarket – Catchment area for the new project

The anticipated overall annual turnover is approximately 8.5 million euros (gross) in the grocery sector (this does not include the anticipated sales figures in the toiletries sector and the non-food II sector – i.e. sales items such as clothing etc.). The figure also allows for an attractiveness factor of new shops.

The RegioProjektCheck applies this method for calculating the absorption of purchasing power to all supermarket locations in the region. Comparison of the computed turnover of the (proposed) supermarket before and after implementation results in a delta, i.e. a differential of calculated turnovers in the grocery sector. This differential is equivalent to the average calculated loss of sales that the existing supermarkets may expect due to the opening of a new supermarket.

In the sample calculation this shows the following figures (see table):

	City centre	Neighbourhood centre
Overall manual turnover – before	19.6 million euros	27.4 million euros
Overall manual turnover – after	17.7 million euros	22.8 million euros
anticipated changes in turnover	<b>- 1.9 million euros</b>	<b>- 4.6 million euros</b>
anticipated changes in turnover (%)	<b>- 9.8 %</b>	<b>- 16.8 %</b>

Table 1: Case study new supermarket – differential of calculated turnovers in the grocery sector

The German planning system requires an assessment of the effects on the availability of basic amenities in areas around settlements and in existing centres, and to weigh up whether the consequences can be supported

or not (cf: Article 11 Section 3 BauNVO “Baunutzungsverordnung” (Land-use Ordinance) and/or Article 34 Section 3 BauGB “Baugesetzbuch” (German Federal Building Code)). Overall objectives include safeguarding the evolved urban structure, reduction of land consumption by avoiding expansion and any additional car traffic. As a rule, this information is not available until plans for the development and its location have progressed far down the line, and are at a stage when modifications are difficult to realise. The RegioProjektCheck and its toolbox aim to give local stakeholders the opportunity to compare alternative locations or different concepts at an early stage (before the actual development plan procedure has started).

The German building control procedure, in accordance with Article 11 Section 3 of the “BauNVO” (Land-use Ordinance) and/or Article 34 Section 3 of the “BauGB” (German Federal Building Code) – and the approach of the particular consultants appointed for the job – often triggers controversial discussion about what the threshold percentage of loss of sales is before having a negative impact on an existing urban area. Although several comments and court decisions have established that there is no blanket figure and each individual case must be considered and tested on its own merits (cf: BVerwG, 17. Dec. 2009 – 4 C 1.08; Fickert, H. C./Fieseler, H., 2008), planning practitioners generally apply a threshold of 10 percent (for whatever reason) as a blanket assessment criterion (cf: Vogels, K.-H.; Holl, S.; Birk, H.-J., 1998; Stadt und Handel (Ed.), 2007; Kuschnerus, U., 2007). RPC intervention will not be able to put a stop to these discussions. However, it does provide the opportunity to deliver objective figures at an early stage which can be verified by local planners and politicians. This may also reduce dependency on reports by external experts.

Further to providing information on economic effects of new supermarkets, RegioProjektCheck delivers a detailed index of supply amenities which can help to determine whether a new supermarket is recommended in a municipality or not.

- Retail centrality shows the ratio of turnover (gross) in a sector (in this case: food) to the existing purchasing power within a study area (in this case: municipality). For values over 100 percent the municipality has balanced purchasing power inflows; values below 100 percent ascertain balanced purchasing power outflows in the municipality.
- The index for density of retail selling space in the food sector (sqm sales area/population) indicates the ratio of total selling space for food to the number of inhabitants. The higher the figure, the better the existing amenities in the survey area.

Looking at Harburg: Implementation of the tested case study would result in the following index (see table).

	Index for density of retail selling space (sqm sales area/population)	Retail centrality – food
before	0.39	87 %
after	0.48	90 %
anticipated changes	<b>plus 0.09</b>	<b>plus 3 percentage points</b>
anticipated changes (%)	<b>plus 23.1 %</b>	<b>plus 2.4 %</b>

Table 2: Case study new supermarket – changes in density of retail selling space and retail centrality

As a rule, data required for the use of RegioProjektCheck varies according to the subject (housing, industry, retail) or depending on the field of activity under consideration. However, the toolbox is designed to work on the basis of relatively easily obtainable data. The only requirement for the “competitive locations of supermarkets” field is information on the region’s existing supermarkets, sorted according to retailer and retail type (entering the exact address in the GIS system) as well as population distribution in the municipality and/or districts/neighbourhoods. All other computations, including the proportional distribution of the municipalities’ population in the settlement cells (areas of 250 x 250 metres edge lengths) run automatically on the basis of the existing teledensity. The same applies to the calculation of distances between settlement cells and supermarkets (matrix).

## 5 CONCLUSION

So far, tests relating to this field of activity in the “Landkreis Harburg” (and the “Rheinisch-Bergischer Kreis”) have produced plausible results. Currently the test is being transferred to another two model regions in Germany and will be completed by the end of 2014. The model regions have shown great interest in the

RPC and it remains to be seen whether the knowledge gained in the process can be applied to other regions. RegioProjektCheck is still run with support from the joint research project in the model regions, however, the long-term aim is to allow RPC to run with the sole support of local stakeholders.

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