4 METHOD AND CONSTRUCTION OF THEORY PATTERNS

4.1 Introduction

From the review of theories on economic development in the previous chapter, we now turn to the question: ‘Which method can be used to examine whether a theory predicts economic development in rural regions?’ In such cases, economists often construct an elegant model, with a limited number of variables in mathematical equations and with specific assumptions on economic behaviour and dynamics. However, it is not our wish to construct a mathematical model of a rural economy. In the previous chapters it is apparent that economic development in rural regions is rather complex and that theories usually include a number of factors in their production function such as networks and institutions. Such factors cannot easily be quantified without loss of information. Given this comprehensiveness, a qualitative method seems to be more appropriate. Another potential problem is related with finding suitable data on networks etc. Fortunately, a rich source of empirical data from 18 case studies in rural regions from the RUREMPLO project was available. Since our budget did not allow for further collection of empirical evidence, we had to restrict the empirical analysis to the data already available. Hence, an obvious choice for a method might be one in which theories are linked with case studies. In methodological literature on case studies, we found that in examining a theory to ascertain whether it is backed up by empirical evidence in case studies, often the method of pattern-matching is recommended (Yin, 1993:38-9; Creswell, 1994:156; Yin, 1994:106-10; Swanborn, 1996:114). As it appeared that this method was for the greatest part in line with our purpose, we decided to apply the method of pattern-matching in our study. In this method three stages can be distinguished: the construction of a theory pattern, the construction of a case study pattern and the matching of both patterns.

This chapter is organized as follows. In the next section we will discuss the method of pattern-matching. In Section 4.3 we carry out the first stage of the method of pattern-matching: the construction of theory patterns for the selected theories for further research as discussed in Section 3.4. As it appeared that the RUREMPLO case studies did not provide sufficient data to test the growth pole theory, Kilkenny’s relationship of transport costs and rural development, and Porter’s theory on the competitive advantage of nations, we have omitted these three theories for further research in this study. In the final section of this chapter, some concluding remarks about the first stage of the method of pattern-matching are made. The second and third phases of the method are dealt with in Chapters 5 and 6.

4.2 Method of pattern-matching

In this section we discuss the method of pattern-matching (Yin, 1993:38-9; Yin, 1994:106-110), which will be used in order to examine whether a theory predicts economic development in a case study region. Basically, this method consists of three steps. First, a theory is specified as a predicted pattern of events. The events in this theory pattern act as a series of benchmarks against which actual data can be compared. Then, in
the case study, information on all events is collected and also stored in a pattern. As a final step, both patterns are matched by analyzing whether the events in the case study pattern are in line with the events in the theory pattern. The higher the number of similar events in the theory and the case study pattern, the better the theory predicts the situation in the case study.

This basic description of the method of pattern-matching needs some explanation. In fact, it can be said that pattern-matching resembles the comparison of DNA profiles in forensic research, in order to examine whether they have the same structure. At this juncture, an illustration of the method of pattern-matching seems appropriate. As explained in Section 3.1, a theory is composed of one or more hypotheses in a form such as ‘if X then Y’, held together by a set of rules. This implies that there are at least two central events in the theory pattern: the independent variable X (represented as event X) and the dependent variable Y (represented as event Y) (Fig. 4.1). The set of rules of the theory may include premises and other conditions affecting the independent variable. These premises and conditions are specified as context events in the theory pattern, which may contribute to our understanding of the deeper structures behind the theory. Suppose now that we rearrange the variables in the theory pattern in Fig. 4.1 into a vector (Fig. 4.2). When the variables of the case study pattern are also represented as a vector, the process of matching can be presented as successively comparing each pair of variables in the theory vector and case study vector.

Application of the method of pattern-matching in this study

Given the general introduction of pattern-matching above, we now move to its application in this study. We operationalize the three distinguished phases of the method as follows:
Figure 4.2  Pattern-matching of vectors with variables\textsuperscript{a) }

\begin{tikzpicture}
  \begin{scope}[every node/.style={draw,shape=rectangle,fill=white,inner sep=2pt}]
    \node (X) at (0,0) {X};
    \node (Y) at (0,-1) {Y};
    \node (A) at (0,-2) {A};
    \node (B) at (0,-3) {B};
    \node (W) at (0,-4) {W};
    \node (X_s) at (1,0) {X};
    \node (Y_s) at (1,-1) {Y};
    \node (A_s) at (1,-2) {A};
    \node (B_s) at (1,-3) {B};
    \node (W_s) at (1,-4) {W};
    \draw[->] (X) -- (X_s);
    \draw[->] (Y) -- (Y_s);
    \draw[->] (A) -- (A_s);
    \draw[->] (B) -- (B_s);
    \draw[->] (W) -- (W_s);
    \draw[->] (X) -- (X_s) node[midway,above] {?};
    \draw[->] (Y) -- (Y_s) node[midway,above] {?};
    \draw[->] (A) -- (A_s) node[midway,above] {?};
    \draw[->] (B) -- (B_s) node[midway,above] {?};
    \draw[->] (W) -- (W_s) node[midway,above] {?};
  \end{scope}
\end{tikzpicture}

\textsuperscript{a)} X is an independent variable; Y is a dependent variable; A, B \ldots W refer to context events; ?? denotes the successive matching of each pair of variables in the vectors.

1  Construction of the theory pattern
The hypothesis of the theory provides the X and Y variables, which will be operationalized in measurable units. Among variables A…W, context events will be included. Specific attention will be given to the context event that refers to the strategy\textsuperscript{1} which affects X. Although the context event ‘strategy’ is not explicitly mentioned in the method, a development strategy to affect X is often identified in the description of our selected theories as it may deepen our insight into the triggers behind economic development. In addition, it serves one of our purposes of giving recommendations to policy makers to stimulate economic development in rural regions.

2  Construction of the case study pattern
For each case study, information will be collected on the variables X, Y, A…W as given in the theory pattern. This information is stored in a case study pattern.

3  Matching
In the process of matching, we first focus on X and Y, which are the central variables in the hypothesis in the theory. If X and Y in the case study pattern have the same values as those predicted by the theory, we conclude that the hypothesis is supported by the case study. As a next step, we compare the values of the context events A…W in the theory pattern and the case study pattern. If these values are similar, we conclude that empirical evidence also supports the occurrence of context events. This process is illustrated in Fig. 4.3.

In the application of the method we faced a specific restriction: our empirical evidence in 18 case studies in rural regions had already been collected in the RUREMPLO project, and our budget did not allow for further collection of empirical evidence. This does not accord with the method, which recommends that researchers first construct a theory pattern and then collect empirical evidence in the case study. We have tried to simulate this ideal situation as follows: disregarding our empirical evidence, we first constructed a theory pattern for each of the selected theories and then turned to our empirical evidence in order to check whether we could find information on the variables as specified in the theory pattern. Sometimes we had to redefine the variables in the theory pattern a little after this consultation, and sometimes we found that no information on the variable was

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available in our empirical evidence. The lack of empirical evidence resulted in the exclusion of three theories for further research. In Chapter 5, the RUREMPLO case studies are examined in more detail.

**Operationalization of variables**

One of the main difficulties to tackle in the method of pattern-matching is the right operationalization of the variables in the theory and the case study patterns. Usually, a theory cannot so easily be unravelled as a pattern of events as the method suggests, and often, a lot of interpretation by the researcher is needed to denote variables. To give an example, in the mixed exogenous/endogenous development approach, innovation is supposed to be an important engine behind economic growth. This premise on innovation can be included as a separate context event in the theory pattern. However, when the researcher finds that innovation is difficult to operationalize as a separate item in the theory pattern or difficult to measure in the case study, he or she might consider including the premise on innovation into another variable. In this way, the variable of an innovating actor can, for instance, be created, i.e., an actor that embodies the premise on innovation. Another problem with operationalization arises when proxies are used in the case study pattern, which are close to, but still differ from the variable in the theory
pattern. These proxies may be subject to other relationships, which are not assumed in the examined theory. For example, the variable ‘exploitation of local knowledge capital’ in Bryden’s theory has been proxied by the presence of filières in the case studies. However, filières are affected by a large number of factors, such as extra-territorial networks, which are not included in Bryden’s theory. These difficulties with operationalization of variables can be considered as shortcomings of the method of pattern-matching and should be taken into account in the interpretation of the results.

**Justification of the selected method**

In this final part of our discussion of the method of pattern-matching, we make some comments on the justification of the use of this method in our study. One of the objectives of our study is to examine whether development trajectories in selected rural regions are according to the predictions of one or more regional economic growth theories (see Section 1.2). In the method of pattern-matching, theories are matched with empirical evidence in case studies, which suits our purpose well. With regard to the use of case studies, it can be said that these are generally preferred as research tools for examining contemporary events, in which relevant behaviour cannot be simulated through controlled experiments by the investigator (Yin, 1994:8). Economic developments in rural regions can be considered as such events.

A common concern about case studies is that they provide little basis for scientific generalization. Here we should emphasize the difference between analytical (or theoretical) generalization and statistical generalization (Yin, 1994:9-48; Hutjes and Van Buuren, 1996:60-6). In pattern-matching, a theory is used as a template with which to compare the empirical results of the case study. If two or more cases replicate the theory, analytical generalization may be claimed: the theory applies to a larger number of cases with similar characteristics. This is exactly what we are looking for in this study. On the other hand, in statistical generalization an inference is made about a population (or universe) on the basis of empirical data collected about a sample. Any application of statistical generalization to case studies would be misplaced: first, case studies should not generally be used to assess the incidence of phenomena, and second, case studies cover a large number of variables, which would require an impossibly large number of cases to allow any statistical consideration of the relevant variables.

**4.3 Construction of theory patterns**

In the previous section we introduced the method of pattern-matching. Now we start with the application of this method to the selected theories as outlined in Section 3.4. In this section the first step of the method will be carried out: the construction of theory patterns. We dedicate a subsection to the theory pattern of each of the selected theories, and start each subsection with the hypothesis that we have already formulated in Section 3.4. This hypothesis provides the X and Y variables from the theory. As the theories are concerned with employment growth, at least the Y variable tends to be a dynamic variable. In the construction of the theory patterns, we will also indicate how we will put the various variables into practice.
During the process of constructing theory patterns, we found that lack of data in the RUREMPLO case studies, made it impossible to undertake pattern-matching in the growth pole theory, Porter’s theory on the competitive advantage of nations and Kilkenny’s relationship of transport costs and rural development. For growth pole theories, detailed information is needed on input-output relations of the leading or propulsive firms. In the case of Porter’s theory, data on export shares and on the determinants at the level of industry segments is needed (Porter, 1990:24). It has to be noted here, that Illeris’ inductive theory of regional development - which is subjected to pattern-matching - shows some relationship with Porter’s theory. Finally, for Kilkenny’s relationship of transport costs and rural development, information on transport costs in the agricultural and industrial sector is needed. Moreover, the rather restrictive premises make the empirical testing of Kilkenny’s very difficult. The exclusion of these three theories means that we continue our analysis with seven theories.

4.3.1 Theory pattern of the mixed exogenous/endogenous development approach

Viewing the mixed exogenous/endogenous development approach we test - given the availability of labour and capital - the following hypothesis: ‘An active role of local actors in internal and external networks stimulates employment growth’ (Section 3.4.9). From this hypothesis, two independent variables and one dependent variable are identified, respectively:
- an active role of the local actors in the internal networks;
- an active role of the local actors in the external networks;
- non-agricultural employment growth.

The following definitions are used:
- local actors: actors who live in the region. We divide this group into policy makers, entrepreneurs and workers;
- network: a group of actors who interact with each other in order to achieve some aim. The network can be formal or informal, its actors can interact frequently or infrequently, it can consist of a large or small number of actors, it can be homogeneous or heterogeneous qua composition of actors, and its aim can be clear or rather vague. In our study we focus on those networks which affect employment opportunities;
- internal networks: networks of local actors;
- external networks: networks of local actors and actors from outside the region.

In order to operationalize ‘an active role of local actors in internal and external networks’, we use information on the capacity of local actors and on the strengths of networks, based on the next considerations:
- local actors are supposed to play an active role when they have the capacity to identify strengths, weaknesses, opportunities and threats and to cooperate with each other in order to address these issues. Capacity usually refers to the three aspects of knowledge, skills and attitude. For the three groups of local actors, we will focus on the following aspects of their capacity:
**Figure 4.4** Theory pattern of the mixed exogenous/endogenous development approach

<table>
<thead>
<tr>
<th>Theory</th>
<th>Mixed exogenous/endogenous approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td>An active role of local actors in internal and external networks stimulates employment growth</td>
</tr>
<tr>
<td>X</td>
<td>An active role of local actors in internal and external networks</td>
</tr>
<tr>
<td>Y</td>
<td>EA1 Non-agricultural employment growth</td>
</tr>
</tbody>
</table>
| Operationalization X | A1 Assessment of capacity local actors: policy makers  
A2 Assessment of capacity local actors: entrepreneurs  
A3 Assessment of capacity local actors: workers  
A4 Assessment of internal networks  
DV1 (derived from A1- A4) Do local actors play an active role in the internal networks?  
A6 Assessment of external networks  
DV2 (derived from A1- A3 and A6) Do local actors play an active role in the external networks? |
| Context events | A5 Create linkages between internal networks and institutions  
A7 Affect the balance of power in networks in favour of local actors |

- policy makers: the ability to act effectively in formulating and delivering policies, in supporting local initiatives and projects and in attracting public funds and investments;
- entrepreneurs: the ability to perceive (market) changes and to respond to them;
- workers: the ability to adapt to changes and to adjust skills to training needs.

So if the capacity of the local actors is high, and if the internal and the external networks are strong, we can state that the local actors have an active role in the networks\(^2\) (Fig. 4.4).

Context events that can be identified for further testing are:
- to affect X, the theory suggests the two following strategies:
  - try to create linkages between internal networks and institutions, so that ‘thick’ ensembles arise, which are mutually reinforcing and able to put regions on viable growth trajectories;
  - try to affect the balance of power in local/external networks in such a direction, that local actors are enabled to exert control and to retain a reasonable proportion of the value added.

- The assessment of the first strategy will be based on the interaction of the local policy makers with entrepreneurs on the one hand, and with the policy makers at upper administrative levels at the other hand.
- The assessment of the second strategy will be based on the extent to which local actors manage to attract public funds, private investments, migrants and tourists.
4.3.2 Theory pattern of the theory of innovative milieu

Viewing the theory of innovative milieu we test - given the availability of labour and capital - the following hypothesis: ‘Filieres, which are characterized by local synergy, local innovativeness and transterritorial networks, stimulate employment growth’ (Section 3.4.7). From this hypothesis, an independent and a dependent variable can be identified (Fig. 4.5):

- Filieres, which are characterized by local synergy, local innovativeness and transterritorial networks;
- Employment growth in the filiere.

The following definitions are used:

- *filière*: a complex of vertically integrated sectors around a certain product, which includes at least the design, production and (foreign) marketing/selling of the product, which is located in a limited part of a region, and which produces for an international consumer market. Within the bulk production, filières try to supply in the top segment. Filières are often active in a traditional industry, which indicates the presence of tacit knowledge. Finally, the filière tends to have a substantial share in regional employment;
- *local synergy*: this synergy arises, for example, from the interaction between local agents, private-public partnerships for infrastructure and service projects, interaction between research centres and adopters, and customer-supplier cooperation. It can be reflected in joint projects and joint ventures among local firms, turnover in skilled labour among firms, the presence of public agencies to promote technological transfer, and the presence of vocational training and organizational consulting units;
- *local innovativeness*: the capacity of filières to regenerate and restructure themselves in response to changes in the (global) market. This is largely reflected in the capacity to imitate and create technology, in a fast reaction capability and in the capacity to shift resources from declining production units to new ones while utilizing the same fundamental know-how. In quantitative terms, the local capacity to innovate can be measured as the rate of formation of new firms and the rate of apprenticeship, patents and R&D expenditure in the filière;
- *transterritorial networks*: networks with external actors, which provide the filière with technological, organizational and market information from outside the region, which is crucial for the continuous recreation of local competitiveness and innovation capability of the filière.

In order to operationalize ‘filieres, which are characterized by local synergy, local innovativeness and transterritorial networks’, we divide this variable into four subvariables:

- filières;
- local synergy of the filière;
- local innovativeness of the filière;
- transterritorial networks of the filière.
Figure 4.5 Theory pattern of the theory of the innovative milieu

<table>
<thead>
<tr>
<th>Theory</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Filières, which are characterized by local synergy, local innovativeness and transterritorial networks, stimulate employment growth</td>
</tr>
<tr>
<td>Y</td>
<td>EA6 Employment growth in the filière</td>
</tr>
<tr>
<td>Operationalization X</td>
<td>EA5 Are there filières in the region?</td>
</tr>
<tr>
<td></td>
<td>A10 Assessment of local synergy of the filières</td>
</tr>
<tr>
<td></td>
<td>A11 Assessment of local innovativeness of the filières</td>
</tr>
<tr>
<td></td>
<td>A12 Assessment of transterritorial networks</td>
</tr>
</tbody>
</table>

Context events that can be identified for further testing are:
- to affect X, the theory gives the following four meta-items to be included in any planning of a strategy (see Section 3.4.7):
  - the involvement of local resources;
  - the creation of synergy among local actors and factors;
  - the link-up with external energies;
  - a continued process of innovation.
These items are already addressed in the hypothesis and are, therefore, not assessed again.

4.3.3 Theory pattern of Bryden’s theory

Viewing Bryden’s theory on the potentials of immobile resources for creating competitive advantages in rural areas, we test - given the availability of labour and capital - the following hypothesis: ‘The exploitation of immobile resources stimulates employment growth’ (Section 3.4.5). Immobile resources refer to social capital, cultural capital, environmental capital and local knowledge capital.

We use the following definitions (Bryden, 1998):
- social capital: the features of social organization, such as trust, norms and networks, that can improve the efficiency of society by facilitating co-ordinated actions. Social capital is embedded in relationships among people; it tends to cumulate when it is used and to be depleted when it is not;
- cultural capital: this includes history, traditions, customs, language, music, art and stories, that may be territorially defined as belonging to an area;
- environmental capital: this refers to the actual physical conditions of space of an area. It includes both natural environmental capital (landscape, land-based resources, climate, etc.) and built environmental capital (structures of historical significance, physical and tourist infrastructure). For the purpose of this study, we divide this type of capital into rural amenities (landscape, cultural heritage, etc.) and local raw materials (wood, minerals, etc.);
- local knowledge capital: this is about the capacity of the area to generate, sustain and build on formal and informal stocks of knowledge and information.
In order to test the hypothesis, we distinguish four subhypotheses:

1. The exploitation of social and cultural capital stimulates employment growth;
2. The exploitation of rural amenities and cultural capital stimulates employment growth in tourism;
3. The exploitation of local raw materials stimulates employment growth in the production related to these raw materials;
4. The exploitation of local knowledge capital stimulates employment growth in the production related to this local knowledge capital.

The position of cultural capital in two subhypotheses can be justified by the fact that its impact is not unambiguous: on the one hand, it can enhance the exploitation of social capital as cultural identity often gives rise to a strong regional consensus; on the other hand, it can be used in encouraging tourism. Four independent variables and four dependent variables can be identified from these subhypotheses (Fig. 4.6).

As our database does not include information on the independent variables, we approximate them as follows:

- the exploitation of social and cultural capital is assessed by the strength of the internal networks;
- the exploitation of rural amenities and cultural capital is assessed by means of the valorization of rural amenities, the availability of tourist infrastructure like facilities and accommodation, and the continuous upgrading of this infrastructure;
- the exploitation of local raw materials is assessed by the presence of economic activities that use these raw materials;
- the exploitation of local knowledge capital is assessed by the presence of economic activities that use this local knowledge.

By doing so, we can identify the exploitation of the first three types of capital from our database; however, no systematic information on the presence of economic activities that use the local knowledge has been collected. It is only when these activities are prominent, for example, in industrial districts, that information happens to be available. This also applies to the dependent variable on employment growth in the production related to local knowledge capital. Another shortcoming concerns employment growth in tourism. In our database, this is often derived from the branch of hotels and restaurants. In this branch, a part of the activities is not intended for tourists. However, we are unable to differentiate between tourist and non-tourist activities.

Context events that can be identified for further testing are:

- social capital and cultural capital: these forms of capital are available everywhere. As we have no information on these items in our database, we will not consider them as context events;
- rural amenities: we assess this by means of scenic landscape, mountains, architectural remains, etc.;
- local raw materials: we assess this by means of the presence of wood, minerals, gas etc.;
- local knowledge capital: we have no information collected on this type of capital. However, when individual information happens to be available and when it is exploited, we take it into account in the independent variable on the exploitation of local knowledge capital;
**Figure 4.6  Theory pattern of Bryden’s theory**

<table>
<thead>
<tr>
<th>Theory</th>
<th>Bryden’s theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td>The exploitation of immobile resources stimulates employment growth</td>
</tr>
</tbody>
</table>
| Subhypotheses | The exploitation of social and cultural capital stimulates employment growth  
The exploitation of rural amenities and cultural capital stimulates employment growth in tourism  
The exploitation of local raw materials stimulates employment growth in the production related to these raw materials  
The exploitation of local knowledge capital stimulates employment growth in the production related to this local knowledge capital |
| X variables | The exploitation of social and cultural capital  
The exploitation of rural amenities and cultural capital  
The exploitation of local raw materials  
The exploitation of local knowledge capital |
| Y variables | EA1 Non-agricultural employment growth  
EA4 Employment growth in tourism  
EA8 Employment growth in the production related to the local raw materials  
EA10 Employment growth in the production related to the local knowledge capital |
| Operationalization X | A4 Assessment of internal networks  
EA2 Assessment of valorization of rural amenities and tourist infrastructure  
EA7 Assessment of presence economic activities using raw materials  
EA9 Assessment of presence economic activities using local knowledge capital |
| Context events | LR1 Rural amenities  
LR2 Local raw materials |

- to affect X, i.e. the exploitation of the different types of capital, the theory recommends the use of the immobile resources in planning a strategy. These are already addressed in the subhypotheses, and are, therefore, not assessed again.

### 4.3.4 Theory pattern of the community-led rural development theory

Viewing the community-led rural development theory we test - given the availability of labour and capital - the hypothesis: ‘A well-developed self-help capacity of communities stimulates employment growth’ (Section 3.4.4). The self-help capacity of communities is assumed to consist of the next three items: capacity of local actors, organizational expertise as reflected in partnerships, and appropriate institutional structures. From the hypothesis an independent variable and a dependent variable are derived:
- a well-developed self-help capacity of communities;
- non-agricultural employment growth.

We use the following definition:
- **community**: all residents who live in a territorial unit, and who are connected by formal and informal economic, social and political relations. These relations imply dynamism, heterogeneity of interests among members and power imbalances (Liepins, 2000).
In order to operationalize ‘a well-developed self-help capacity of communities’, we use information on the following items:

- **capacity of local actors**, i.e. policy makers, entrepreneurs and workers (see Section 4.3.1);
- **internal networks** (see Section 4.3.1);
- **external networks** (see Section 4.3.1);
- **appropriate institutional structures** are assessed through the functioning of the linkages between local, regional, national and EU authorities. When local policy makers have good contacts with upper-level policy makers and when they are able to attract public funds for local projects from upper-level policy makers, institutional structures are positively assessed. This assessment will be derived from the variables A5 and A7 (see Section 4.3.1).

If the assessment of all these items is positive, we conclude that the self-help capacity of communities is well developed.

Context events that can be identified for further testing are:

- to affect X, the theory gives the following strategy: mobilizing of the self-help capacity through initiatives of community leaders or through external assistance of partnerships with regional or national authorities, with universities and development agencies.

We have not collected information on such a strategy in our case studies. We will approximate the strategy in the following ways:

- the presence of local leaders, who mobilize other local actors;
- a strong regional identity, which brings about a common view;
- external assistance for capacity building;
- linkages with universities in which know-how is transferred;
- the presence of development agencies.
4.3.5 Theory pattern of Illeris’ theory

Viewing Illeris’ inductive theory of regional development (1993) we test - given the availability of labour and capital - the following hypothesis: ‘A strong set of local conditions stimulates employment growth’ (Section 3.4.10). According to the theory, the set of local conditions refers to:

1. **political conditions**: the extent to which upper-level policy makers implement regional development policies (administrative structures) and the capacity of local policy makers to design and manage projects according to the needs of the region;
2. **internal networks**;
3. **capacity of workers**: in particular, the supply of adequate skilled labour and the willingness to be trained;
4. **capacity of entrepreneurs**: in particular, the degree of innovation-mindedness and entrepreneurial spirit;
5. **physical infrastructure**: the availability of both transport infrastructure and soft infrastructure like technical schools, training centres, universities and knowledge centres;
6. **agglomeration**: centres with a relatively high density of population and economic activities;
7. **rural amenities**: these attract people by providing an attractive environment.

From the hypothesis an independent variable and a dependent variable are derived:
- a strong set of local conditions;
- non-agricultural employment growth.

In order to operationalize ‘a set of local conditions’, we use information on the next items:
- **political conditions** will be assessed by means of the variable on the capacity of policy makers (see Section 4.3.1) and the variable on administrative structures (see Section 4.3.4);
- **internal networks** (see Section 4.3.1);
- **capacity of workers** (see Section 4.3.1);
- **capacity of entrepreneurs** (see Section 4.3.1);

The items above are similar to the subvariables which constitute the self-help capacity of communities (except for external networks; see Section 4.3.4). Therefore, instead of using the individual variables above, we will use the variable on self-help capacity.

In addition, we use data on:
- **physical infrastructure** which will be assessed according to transport infrastructure inside the region, transport connections with the rest of the country and soft infrastructure, i.e. the availability of technical schools, training centres, universities and knowledge centres;
- **agglomeration** which comprises cities or urbanized parts with a certain degree of concentration of economic activities and population, and which act as regional economic centres. Data on agglomeration have not been collected as such in the case studies. Exact minimum thresholds for population size or share of economic activities are difficult to determine, as these mainly depend on the kind of activities. Vanhove (1999:320) argues that an absolute minimum threshold for a...
Theory pattern of Illeris’ theory

<table>
<thead>
<tr>
<th>Theory</th>
<th>Illeris’ theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td>A strong set of local conditions stimulates employment growth</td>
</tr>
<tr>
<td>X</td>
<td>A strong set of local conditions</td>
</tr>
<tr>
<td>Y</td>
<td>EA1 Non-agricultural employment growth</td>
</tr>
<tr>
<td>Operationalization X</td>
<td>DV4 Is the self-help capacity of communities well developed? (derived from A1-A6 and DV3)</td>
</tr>
<tr>
<td></td>
<td>LR3 Assessment of transport infrastructure inside the region</td>
</tr>
<tr>
<td></td>
<td>LR4 Assessment of external transport connections</td>
</tr>
<tr>
<td></td>
<td>LR5 Assessment of soft infrastructure</td>
</tr>
<tr>
<td></td>
<td>LR6 Assessment of agglomeration</td>
</tr>
<tr>
<td></td>
<td>LR1 Assessment of rural amenities</td>
</tr>
<tr>
<td>Context events</td>
<td>-</td>
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</tbody>
</table>

Regional growth centre is around 30,000 inhabitants. This threshold is derived from infrastructure costs, the need for the provision of basic services to industry, the need for a reasonably large and diversified labour market and the need for a certain degree of labour reserve. We will use this threshold for the assessment of agglomeration;
- **rural amenities** (see Section 4.3.3).
If the assessment of all these items is positive, we conclude that the set of local conditions is strong.

Context events that can be identified for further testing are:
- to affect X, the theory recommends a strategy which affects the local conditions. Such a strategy should be based on an analysis of the problems and opportunities of the region and be implemented by local and regional authorities. This matches with the variable on the capacity of policy makers, which is already included in the independent variables.

4.3.6 Theory pattern of Myrdal’s theory

Due to the cumulative character of Myrdal’s cumulative causation theory (Section 3.4.3), we cannot describe the theory in a static hypothesis like ‘if X then Y’ as in the previous subsections. In fact, we have to hypothesize the cumulative process in a dynamic form like ‘if X → Y → X → Y → X’ etc. Such a way of testing is rather problematic, as the method of pattern-matching is not designed to deal with cumulative processes. Another problem arises with the rather tautological hypothesis: ‘Leading regions cumulate wealth whereas lagging regions lose wealth’ of the theory. Despite these difficulties, we still include Myrdal’s theory in our set of selected theories for pattern-matching in order to investigate whether Myrdal’s theory provides additional insights into economic development in rural regions. In the interpretation of the results we have to take into account that pattern-matching of this theory is simplified.

The hypothesis above would be correct for underdeveloped regions; however, the EU countries, which we deal with are considered to be welfare states. In such cases, Myrdal’s
theory assumes that policy inferences and spread effects will counteract the cumulative process of losing wealth in lagging regions. These counteracting effects may even result in a cumulation of wealth in the lagging regions. In the end, if the level of cumulated wealth passes a certain critical value, the lagging region can become a leading region: a new centre of self-sustained economic expansion. As long as a region is lagging, this critical level of wealth has not been reached.

Given the explanation above, the set of dynamic hypotheses that we test in the scope of Myrdal’s theory is:

1. **Leading regions cumulate wealth.**
   Considering the fact that lagging regions can either increase or lose wealth, it makes no sense to hypothesize on an increase or decrease in the amount of cumulated wealth. However, as the theory assumes a difference in the critical level of cumulated wealth between leading and lagging regions, we also test:
   
2. **The level of wealth in lagging regions is below that in leading regions.**

From the hypotheses we derive two independent variables and a dependent variable:
- a leading region;
- a lagging region;
- wealth.

We use the following definitions:

- **leading region**: a region is considered to be leading if the growth rate of non-agricultural employment was 0.5 percentage points above the national growth rate during a period of about ten years in the 1980s and early 1990s (see Section 2.3);
- **lagging region**: a region is considered to be lagging if the growth rate of non-agricultural employment was 0.25 percentage points below the national growth rate during a period of about ten years in the 1980s and early 1990s (see Section 2.3).

In order to operationalize ‘wealth’, we use information on the following items:
- the level and the development of GDP/capita;
- migration;
- inflow of private and public investments;
- values and standards of local actors with regard to new activities;
- state and development of transport and soft infrastructure.

If these items have a high value for leading regions and if the values are increasing, we conclude that leading regions are cumulating wealth; in addition, if these items have a lower value in lagging regions than in leading regions, we conclude that our data support the hypotheses. In particular, we will assess these items by comparing each pair of leading/lagging case study regions within the same country according to:
- GDP/capita: leading regions are assumed to have a higher GDP/capita and also a higher increase in GDP/capita compared to lagging regions;
- migration: leading regions are assumed to experience immigration of workers while lagging regions are expected to have outmigration of workers or a lower immigration than leading regions. Migration will be derived from the migration balance;
- inflow of private and public investments: private and public investments are expected to flow into leading regions while lagging regions are assumed to lack
Figure 4.9  Theory pattern of Myrdal’s theory

<table>
<thead>
<tr>
<th>Theory</th>
<th>Myrdal’s theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypotheses</td>
<td>Leading regions cumulate wealth</td>
</tr>
<tr>
<td></td>
<td>The level of wealth in lagging regions is below that in leading regions</td>
</tr>
<tr>
<td>X variables</td>
<td>Leading regions and lagging regions respectively</td>
</tr>
<tr>
<td>Y</td>
<td>Wealth</td>
</tr>
<tr>
<td>Operationalization Y</td>
<td>EA11 Assessment GDP/capita and its increase</td>
</tr>
<tr>
<td></td>
<td>A8 Assessment of migration balance</td>
</tr>
<tr>
<td></td>
<td>DV5 Assessment of inflow of private and public investments, (derived from assessment given in ‘Benefits of external networks’ in A7)</td>
</tr>
<tr>
<td></td>
<td>DV4 Is the self-help capacity of communities well developed? (derived from A1-A6 and DV3)</td>
</tr>
<tr>
<td></td>
<td>LR3 Assessment of transport infrastructure inside the region</td>
</tr>
<tr>
<td></td>
<td>LR4 Assessment of external transport connections</td>
</tr>
<tr>
<td></td>
<td>DV6 Assessment of improvement in transport infrastructure (derived from LR3 and LR4)</td>
</tr>
<tr>
<td></td>
<td>LR5 Assessment of soft infrastructure</td>
</tr>
</tbody>
</table>

- Context event | A13 Assessment of exogenous changes |

an inflow of private and public investments or to experience a lower inflow than leading regions. Exact data on investments have not been collected in the case studies, but general information whether case study regions benefited from public funds and private investments is available. So we use this general information as proxy;

- values and standards of local actors with regard to new activities: these are assumed to be positive in leading regions and negative or less positive in lagging regions. As exact data have not been collected in the case studies, we approximate this item by the self-help capacity of communities (see Section 4.3.4). Leading regions are assumed to have a high self-help capacity and lagging regions a lower one;

- transport and soft infrastructure: this is assumed to be well developed and expanding in leading regions and less well developed and less expanding in lagging regions (see Section 4.3.5).

Context events that can be identified for further testing are:

- a strategy to affect X is not given in the theory: inequalities between leading and lagging regions are inherent in this self-reinforcing process. Only an exogenous change, spread effects or policy intervention can change the process.

  - Exogenous changes refer to changes with such a strong impact on the system that a cumulative process is being started, either in the direction of a positive or a negative spiral;

  - In the case of lagging regions, spread effects and policy interferences may counteract the loss of wealth. As EU member states are welfare states, we assume that general welfare and regional redistribution policy are among their responsibilities. However, we have not collected detailed data on the impact of spread effects and policy interferences on the loss of wealth, and hence, we can not take this context event into account.
4.3.7 Theory pattern of the creative destruction model of community development

Viewing the creative destruction model of community development (Mitchell, 1998) we test - given the availability of labour and capital - the following hypothesis: ‘Overexploitation of rural amenities destroys employment in sectors related to these rural amenities’ (Section 3.4.6). From the hypothesis an independent variable and a dependent variable are identified respectively:
- overexploitation of rural amenities;
- employment in sectors related to these rural amenities.

In order to operationalize ‘overexploitation of rural amenities’, we first assess whether rural amenities are valorized and, then, whether this valorization is a matter of overexploitation, i.e. too many visitors and destruction of the attractiveness of the rural amenities.

Employment in sectors related to rural amenities is assessed by using information on employment growth in the tourist sector.

Context events that can be identified for further testing are:
- rural amenities: we assess this by means of scenic landscape, mountains, architectural remains, etc.;
- to affect X the theory recommends the strategy of remaining in the phase of early commodification. In fact, this implies a stop to the independent variable, which defies the logic of the events in the theory pattern. So this strategy is not included in the assessment of the context events.

4.4 Concluding remarks

In this chapter we introduced the method of pattern-matching, which we will use in order to examine whether a theory predicts economic development in a case study region. In this method three stages can be distinguished. The first stage involves the construction of theory patterns, which has also been carried out in this chapter. The second stage of the method deals with the construction of case study patterns, and will be discussed in Chapter 5, whereas the third stage on the matching of the theory and case study patterns is the topic of Chapter 6.

Figure 4.10 Theory pattern of the creative destruction model of community development

<table>
<thead>
<tr>
<th>Theory</th>
<th>Creative destruction model of community development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
<td>Overexploitation of rural amenities destroys employment in sectors related to these rural amenities</td>
</tr>
<tr>
<td>X</td>
<td>Overexploitation of rural amenities</td>
</tr>
<tr>
<td>Y</td>
<td>EA4 Employment growth in tourism</td>
</tr>
<tr>
<td>Operationalization X</td>
<td>EA2 Assessment of valorization of rural amenities and tourist infrastructure</td>
</tr>
<tr>
<td></td>
<td>EA3 Assessment of overexploitation</td>
</tr>
<tr>
<td>Context event</td>
<td>LR1 Rural amenities</td>
</tr>
</tbody>
</table>
In the construction of theory patterns, it appeared that a theory cannot so easily be unravelled into a pattern of events (i.e. independent variables, dependent variables and context events) like the method of pattern-matching suggests, and often, a lot of interpretation by the researcher is needed to denote variables. In a number of theories, we have included, for example, some of the premises of the theory in the independent variable. So often the premise on innovation as a main engine behind economic growth was embodied into the capacity of actors. In other cases, things seemed to be just the other way round, as we had difficulties distinguishing context events since these were already included in the independent variable.

As theory patterns give a kind of basic summary of relationships among the main variables in the theory, they appear to be a handy tool for detecting similarities and differences among theories. A comparison of the independent variables and the context events in the theory patterns enable us to perceive - given the availability of labour and capital - the following relationships among the theories under review (Fig. 4.11):

1. There is a close relationship between the mixed exogenous/endogenous approach and the community-led rural development theory: the independent variable and the context events are more or less the same and consist of capacity of local actors, internal and external networks and appropriate administrative structures.

2. Illeris’ theory adds the items of transport and soft infrastructure, agglomeration and rural amenities to the independent variables and context events of the mixed exogenous/endogenous approach and the community-led rural development theory.

3. Myrdal’s theory adds the items of immigration, inflow of private and public funds, and GDP/capita to the independent variable of Illeris’ theory.

4. Bryden’s theory can be perceived as a partial branch of the mixed exogenous/endogenous approach and the community-led rural development theory with regard to its independent variable of the exploitation of social and cultural capital. In this sense, the prominent role of local actors and networks in this group of theories, as well as in Illeris’ and Myrdal’s theory, is striking. On the other hand, Bryden’s theory is also related to Illeris’ theory with regard to the independent variable on the exploitation of rural amenities. Finally, the creative destruction model can be linked to this chain of exploitation of rural amenities.

5. The theory of the innovative milieu is a firm-oriented theory and remains, therefore, outside the related group of community-oriented theories. Nevertheless, the operationalization of its independent variables reflects more or less the same properties for the filière as those in the mixed exogenous/endogenous approach for the community.

These relationships among theory patterns are quite different from those we have given in Fig. 3.4, in which we have classified theories according to their factors in the production function. It may be clear that these differences arise from the ‘embodying’ of premises in independent variables. This embodying should be taken into account when interpreting the results of the comparison of theory patterns. Notwithstanding the similarities in the independent variables and context events in the theory patterns, several differences among theories exist, mainly with regard to the degree of external orientation and the role of innovation. The community-led rural development theory and Bryden’s theory are more internally oriented than the other theories, in which external factors play
Figure 4.11  Relationships among the independent variables and context events in the theory patterns of the examined theories (given the availability of labour and capital)

- **Firm-oriented theories**
  - Innovative milieu
    - Local synergy
    - Innovativeness
    - Transterritorial networks
  - Community-oriented theories
  - Community-led rural development
    - Capacity of actors
    - Internal/external networks
    - Administrative structures
  - Bryden's theory
    - Exploitation of social and cultural capital
    - Exploitation of local raw materials
    - Exploitation of local knowledge
  - Creative destruction model
    - Overexploitation of rural amenities

- **Mixed exogenous/endogenous approach**
  - Capacity of actors
  - Internal/external networks
  - Link networks-instit./balance of power
  - Active role actors in networks

- **Illeris theory**
  - Items above
  - Infrastructure
  - Agglomeration
  - Rural amenities

- **Myrdal's theory**
  - Items above
  - Immigration
  - Inflow of public and private investments
  - GDP/capita

Myrdal’s theory - located in the group of agglomeration models - and the community-led rural development theory, Bryden’s theory and the creative destruction model - located in the group of local milieu models - do not explicitly focus on the function of innovation as an engine behind economic growth, whereas innovation is a more central issue in the other theories.
NOTES

1 A strategy can be expressed in terms of a ‘long-term plan aimed at achieving a specific goal’. Here, the specific goal refers to affect X and thereby increasing Y via the relationship assumed in the hypothesis.

2 A variable which is constructed in this way, is called a derived variable (DV) in the theory patterns.

3 Although institutions can be interpreted in a much broader sense, the theory explicitly refers to administrative structures.

4 Our definitions of ‘leading’ and ‘lagging’ are only based on employment growth, whereas according to Myrdal leading (lagging) regions are not only characterized by employment growth (decline), but by high (low) GDP/capita, high (low) endowment of infrastructure etc. as well.