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The Role of Public Economy in Innovation and Digital Transformation of Structural Weak Rural Regions in Germany

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Abstract

For decades, rural areas have repeatedly been the subject of scientific and socio-political discussions in Germany. Crisis such as demographic change, changes in the economic structure and austerity in many rural municipalities make it difficult to provide infrastructure facilities and public services. These difficulties became particularly apparent during the Corona pandemic as digital infrastructure and access to powerful internet turned out to be particularly central. Rural regions are often located not only in the geographical periphery, but also in the digital periphery which is of particular relevance for Germany. Almost $\frac{3}{4}$ of all districts can be classified as rural regions or regions with slight urbanisation, in which more than half of the population lives. In the international literature, it is argued that local public enterprises (LPEs) are generally important promoters of innovation and digital transformation in public services. For rural regions in Germany, there has been a lack of sufficient conceptual and empirical analysis so far. Against this background, the paper addresses the following questions on the basis of literature research and document analysis as well as an in-depth analysis of municipally-owned housing companies: What contribution do LPEs – esp. municipally-owned housing companies – make to innovative service provision and digital infrastructure in rural regions? To what extent do cooperation exist between LPEs, local governments and non-state actors in solving the above mentioned challenges? What are the implications for the future adaptability and innovative capacity of LPEs, local governments and politics in rural regions?

Keywords: Local Public Enterprises, Innovation, Digital Transformation, Structural Weak Rural Regions.



1. Introduction

Public sector organisations are always faced with socio-economic challenges, to which they can respond with a variety of strategies (Osborne et al. 2014). In addressing such challenges, the topics of innovation, digital transformation and collaboration play a crucial role, are often inter-connected or even interdependent (Kuhlmann/Heuberger 2021; Kekez/Howlett/Ramesh 2018; Bekkers/Tummers 2018; Crosby/Hart/Torfining 2016; Windrum 2008). This is also reflected in Germany where maintaining and improving local public service delivery is currently an important socio-political issue (cf. Commission on Equivalent Living Conditions by the German Federal Government). Reasons are not only the COVID-19 pandemic, but also the consequences of the demographic change in most German rural municipalities. It is therefore not surprising that rural areas have repeatedly been the subject of scientific and socio-political discussions in Germany for decades (BMVBS 2010; BLE 2013; BMVI 2016; Bernt/Liebmann 2013; Kersten et al. 2015a, 2015b). Crisis such as demographic change, changes in the economic structure and austerity in many rural municipalities make it difficult to provide infrastructure facilities and public services (Hüther et al. 2019).

The need for new strategies became particularly apparent during the COVID-19 pandemic. The sparse population of rural areas has proven to be a locational advantage during this time and has raised awareness of the opportunities of modern life in rural regions. Nevertheless, the pandemic has also brought to light the spatially unequal provision of public – especially digital – infra-structure in Germany. It seems more urgent than ever to catch up on the development of infrastructure in rural areas in order to counteract spatial and social inequalities. However, rural regions can only develop into a long-term resource and retreat area for cities where we find a well-developed and functioning range of infrastructure and public services (e.g. health, care, mobility and housing). During the pandemic, the digital infrastructure and access to powerful internet turned out to be particularly central, which is, however, not yet a matter of course in Germany, especially in rural areas. Rural regions are often located not only in the geographical periphery, but also in the digital periphery. The phenomenon, discussed under the keywords ‘digital divide’ or ‘urban-rural divide’ (Philip et al. 2015; Salemink et al. 2017), is of particular relevance for Germany, as almost $\frac{3}{4}$ of all districts can be classified as rural regions or regions with slight urbanisation, in which more than half of the population lives (BBSR 2017).

In the international literature, it is argued that local public enterprises (LPEs) are generally important promoters of innovation and digital transformation in public services (e.g. The Routledge Handbook of State-Owned Enterprises). For rural regions in Germany, there has been a lack of sufficient conceptual and empirical analysis so far. Against this background, the paper addresses the following questions on the basis of literature research and document analysis as well as an in-depth analysis of municipally-owned housing companies:

- What contribution do LPEs – esp. municipally-owned housing companies – make to innovative service provision and digital infrastructure in rural regions?



- To what extent do cooperation exist between LPEs, local governments and non-state actors in solving the above mentioned challenges?
- What are the implications for the future adaptability and innovative capacity of LPEs, local governments and politics in rural regions?

2. Institutional differentiation and the ‘Enabling and Ensuring State’

Recent and future trends in the delivery of local public services in shrinking cities can be even better captured by bearing in mind the considerable changes in the organisational landscape in Germany. In recent decades, a broad range of public services has increasingly been transferred to organisations outside the local core administration. The shift from the model of the ‘caring welfare state’ towards the model of the ‘enabling and ensuring state’ has fundamentally changed the understanding of public service provision. The idea behind is the division into different levels of responsibility (guaranteeing, providing, financing and serving as a fallback provider). Services are no longer directly delivered by the core administration, but also by other state and non-state actors which jointly contribute to a sustainable and innovative service delivery and which share specific know-how and resources across organisational boundaries (Bekkers/Tummers 2018; Sørensen/Torfinng 2011). German local governments try to tackle decline in shrinking rural cities by seeking collaboration. The scope of collaboration can be composed of the following arrangements (Friedländer/Röber/Schaefer 2021):

- different departments and units of the local core administration (in-house provision) or several local authorities (intermunicipal cooperation);
- corporatisation, like LPEs legally and organisationally independent institutions or hybrid institutions jointly owned by public and private shareholders;
- contracting out, i.e. by transferring public tasks to not-for-profit or private organisations for a fixed period;
- co-production as a partnership between professionalised service providers, users or other members of the community.

These different forms of collaboration can be described as a “mode of governance by which policies are implemented and services are delivered through interaction between two or more of state, market, and civil society actors.” (Kekez/Howlett/Ramesh 2018, p. 245). In other words, sustainable and innovative service delivery is characterised as a process of cooperation and co-creation between different stakeholders in order to address societal challenges (Voorberg/Bekkers/Tummers 2015; Bekkers/Tummers 2018).

With regard to the research questions we will concentrate on corporations, respectively LPEs, as one of these stakeholders. The aim to transform administrative units into companies, is to enable these newly established corporations to act more flexibly and independently. LPEs seem to be somewhat unique within the diversified organisational landscape of public service providers as they act in a tension between ownership, political control and management. On the one hand they operate under public ownership which enables a municipality to take



responsibility for the control of its enterprises. On the other hand LPEs often granted extensive managerial autonomy and cooperative flexibility for the potential activation of innovation and sustainability processes (Howlett/Ramesh 2020; Friedländer/Röber/Schaefer 2021; Voorn/van Genugten/van Thiel 2017). Moreover, LPEs are more likely to be public-oriented than profit-oriented which predestines them to make important contributions to sustainability and social equity as part of their public missions (Sorrentino 2020).

3. LPEs as important actors in structural weak rural regions

3.1. Some General Developments

According to calculations of the Federal Statistical Office of Germany, there are approximately 15,000 LPEs in total. About half of the public sector employees at the local level are employed in such corporations. Therefore, these enterprises are regarded as important local employers that generally play an active role in the structural and labour market policy (Federal Statistical Office of Germany 2014; Kuhlmann/Wollmann 2019).

It should be noted that the business activity of German LPEs “is legally restricted by a triad of restrictive principles (Schrankentrias)” (Wollmann 2020, p. 52). Services that are delivered by these companies must have a clear public purpose, have to be spatially concentrated to their local government’s territory and needs to fulfil the principle of subsidiarity. A lot of public enterprises act as multi-utilities (Stadtwerke) which typically provide a range of several public services (e.g. energy, water, refuse collection, local public transport). These companies offer certain capacities for collaborative innovation as they act as leading actors in fostering energy transition. Many local public utilities in rural regions already offer green electricity from renewables. Larger ones have already invested in own renewable sources, like wind and solar energy, but also biomass and water energy. In addition, many of local public transport companies create solutions for sustainable and green local transport systems, e.g. by facilitating electric mobility and electricity charging stations as well as linking local public transport with car sharing and public bicycle rental systems (UBA 2016; Castelnovo/Florio 2020).

Due to the growing (political) interest in handling some of the most serious problems in shrinking cities, the German Association of Local Utilities¹ identifies a large number of cases in which these enterprises act as important ‘anchors’ for the provision of basic but also innovative technical and social infrastructural facilities. LPEs became forerunners for the digitalisation in shrinking rural regions (for an international comparison: Sánchez-Carreira/Vence/Rodil-Marzábal 2020). In addition, there are other future issues, like ‘smart region’, ‘smart city’ and ‘digital transformation’, where LPEs can complement social and environmental responsibility with their own business innovations. There seems to be a growing awareness among these enterprises and their public owners that technological change is a

¹ The German Association of Local Utilities represents around 1,460 German municipally-owned corporations in the area of energy and water supply, waste, wastewater, and telecommunication.



means with great change potential for Germany's shrinking rural regions (important pull factor with cumulative effects that makes these regions attractive). As we know from international experiences, new developments in information and communication technologies can play a crucial role in facilitating collaboration between citizens, public, third, and private sector organisations in rural regions as they offer new ways in which these actors contribute to service delivery (Pestoff 2012; Steen 2021). Examples like the expansion of broadband and fibre optic, applications in digital health and smart home (German Association of Local Utilities 2019) make it promising to pursue the question of whether LPEs can be described as promoters or champions of innovation who actively and intensively facilitate transformation processes for sustainable development (Gemünden 1985; Hauschildt/Kirchmann 1998).

Looking at the past, the interpretation of the role of LPEs in Germany's rural areas was already addressed intensively in the 1960s, 1970s and 1980s. In German-speaking countries the academic discussion and the political understanding of public and social-economic enterprises found its roots in the conception of the *Geimwirtschaft* (common or social economics) (Obermann/Kostal 2020). The *Gemeinwirtschaftslehre* – as the economic theory behind² – was mainly influenced by one of its prominent academic German representatives Theo Thiemeyer who referred this conceptual lens to those enterprises dedicated to the fulfilment of public tasks (Thiemeyer 1983). Central argument to substantiate the role of LPEs is the 'instrumental thesis'. According to this, LPEs "are instruments of economic policy on their own (*sui generis*). The aims ... could be aligned with allocative, distributional or economic stabilisation policy, as well as special regional, social or structural policies. ... From this perspective, the dominant regulative principle is obviously 'public interest'" (Obermann/Kostal 2020, p. 115).

The objective of developing sparsely populated regions was described as the major effort of public utilities, public sector financial institutions and public transport companies. Emphasis was placed on the fact that, in contrast to private commercial enterprises, the business policy geared towards the public and common good would treat more or less economically efficient groups and areas equally (Thiemeyer 1970). Even though conditions and challenges of rural areas are certainly different and more complex today, it can be assumed that LPEs still have an essential function for these regions.

What needs to be considered here as an overarching development of the last 20 years, is the renewed interest of local authorities to re-publicise or re-municipalise public service delivery (Wollmann 2020; Bauer/Markmann 2016). Municipalities have increasingly become aware of the lack of influence on the supply infrastructure and regional development (Friedländer/Röber/Schaefer 2021; Voorn/van Genugten/van Thiel 2017). After decades of privatising public services, some local authorities in rural regions have terminated concession

² From Thiemeyer's perspective this theory "deals with the operation of organisations whose primary aim is not that of profit maximisation. It deals with roughly the same field as public sector economics in English textbooks, but is somewhat broader (e.g. it discusses cooperatives)" (Thiemeyer 1983, p. 406).



contracts that were awarded to external private suppliers in former times or in a few cases have bought back utilities. Between 2000 and 2013 the number of public funds, utilities, and enterprises has risen steadily. Although no general trend towards “re-municipalisation” can be observed, some evidence for the “renaissance” of publicly provided services is apparent in the local energy sector and in waste disposal. In both sectors, concessions have been taken over by municipalities or their public enterprises in recent years, municipal energy utilities have been newly founded, and sales revenue of these utilities and public waste disposers have increased (ibid.). A study has identified 72 newly founded municipal energy utilities for the period since 2005 – most of them in smaller municipalities or rural regions (Wagner/Berlo 2015).

Apart from the obviously enhanced service delivery role for LPEs, recent studies on their role within local policy processes show that they also exert influence on policy formulation and community governance. Here, we can speak of a broader role for LPEs in facilitating processes of collaborative governance. Beside direct forms of joint policy formulation together with local politicians, citizens, non-profit organisations, and administrative units – like in projects on regional and urban development – (Friedländer 2019) most LPEs are also in close contact with their customers. Needs, wants and ideas of citizens – articulated through customer surveys, observatories, customer forums or open days (Lampropoulou 2020) – are brought into political perceptions by management boards. In addition, managers of LPEs are often involved in well-informed interest groups and networks where they obtain comprehensive knowledge about innovations and industry developments (e.g. digitalisation) which they put on local policy agendas later (Friedländer 2019).

In order to interpret the contribution of LPEs to tackle wicked problems in Germany’s shrinking rural cities, the following section will provide some deeper insights into the role of municipally-owned housing companies. Their public missions seem particularly dependent on regional and demographic factors (Conrad/Trigo Gamarra/Neuberger 2014). Municipally-owned housing companies are central anchors and policy tools in both urban and rural areas when it comes to solving locational and socio-political problems (Egner/Grohs/Robischon 2021).

3.2. The case of municipally-owned housing companies

Preserving social cohesion in urban and rural communities is closely linked to housing policy issues (e.g. Bolt/Phillips/van Kempen 2010; Brandsen/Heldermann 2012). This is particularly true for municipally-owned housing companies in rural regions in Germany whose public mission does not only include the provision of adequate housing in qualitative and quantitative terms but also other sustainability-related tasks to secure equivalent living standards (Egner/Grohs/Robischon 2021; Deutscher Städtetag 2020). As long-established actors in local public service provision with an enormous background of experience, e.g. in the interaction (and tension) between politics, economy and civil society, municipally-owned housing companies have a solid foundation to meet new challenges (e.g. digital transformation) and to provide substantial and innovative contributions to strengthen rural regions.



According to a study on local public housing in Germany by the Federal Institute for Research on Building, Urban Affairs and Spatial Development, about one quarter of the 1.6 million municipally-owned housing units in Germany are located in rural areas. Of these, about 200,000 are located in sparsely populated areas (BBSR 2017).³

Municipally-owned housing companies and their public owners face two main challenges of regional demographic dynamics. In some German rural regions, shrinkage on the one hand and population influx on the other must often be balanced at the same time. By solving this problem, one and the same publicly-owned housing company that is, in a rule, responsible for large coverage areas (e.g. in larger rural districts in most eastern German federal states) makes an important contribution to spatial cohesion. In peripheral locations with population decline, it is necessary to react to out-migration and an increase in structural weakness, while in conurbations it has to respond to influx (Deutscher Städtetag 2020). This is the case, for example, in some rural districts in the federal state of Brandenburg which are, on the one hand, characterised by shrinking peripheral cities and towns mainly located at the outer border of Brandenburg and growing cities near to the metropolitan area of Berlin. Thus, depopulation requires the sale or demolition of part of the public housing stock, including the transfer of the resulting space to a new use (Bölting 2016), whereas the remaining housing stock must be modernised to meet demand, new housing locations must be constructed or purchased in order to relieve conurbations. At the moment demand tends in two directions: both small and age-appropriate housing units and attractive housing for younger people and families, part of whom are moving from the big cities due to the scarcity of affordable housing (also BBU 2019).

Municipally-owned housing companies provide a wide range of social services. In Germany, this is discussed in the context of the “Return on Urban or Social Investments”. In addition to the construction and operation of social infrastructure facilities (e.g. nursery schools), age-appropriate housing or means to avoid socio-spatial segregation (Bölting 2016), this contribution to social equity has become particularly clear in recent years with respect to the integration of refugees. In contrast to metropolitan areas with a tight housing market, the existing vacancies in shrinking rural areas make them more suitable for accommodating refugees and asylum seekers. Local authorities will be able to meet the challenge of decentralised accommodation of refugees more easily if they can make use of stocks held by their own housing companies (Aumüller/Daphi/Biesenkamp 2015; for some international findings: Strokosch/Osborne 2017). Moreover, a study which investigated the refugee’s view on rural regions reveals that from the refugees’ point of view the question of ownership is an important factor that can facilitate or impede access to housing (Kordel/Weidinger 2017). This makes municipally-owned housing companies key partners for local authorities in the joint provision of housing for refugees (BBSR 2017).

³ These data are taken from a survey of the Federal Institute for Research on Building, Urban Affairs and Spatial Development in which 3,174 municipalities and districts were asked about their current situation in housing policy; for methodological details, see BBSR 2017.



What we have learned from our case as well is that the special function of municipally-owned housing companies in solving various social challenges is also reflected in the way they facilitate co-creation as altered ways of interacting with their clients or other organisations. When providing social services for the local community, a large part of service provision takes place in cooperation with several non-profit providers or in direct collaboration with citizens. Following the international debate on various forms of co-production, municipally-owned housing companies in shrinking rural areas appear to be important partners in co-governance (e.g., when policies in sustainable regional and urban development are jointly formulated), co-management (e.g., when neighbourhood-related residential projects are jointly implemented and managed) or co-finance (e.g., when local sports and cultural activities are funded or when rooms free of charge for voluntary organisations are provided) in order to improve local living conditions and to make shrinking cities more attractive.

Further areas of cooperation between municipally-owned housing companies and other state and non-state actors have emerged in recent years as a result of the need to take action in the context of energy transition and digital transformation. As researchers from the University of Leipzig have investigated, municipally-owned housing companies cooperate with public and private energy utilities, multi utilities and also private technology companies and service providers in the planning and implementation of projects such as tenant electricity, smart grid, virtual power plants or e-mobility (Rottmann et al. 2017). In the future, this could open up a wide range of possibilities for a lively community in rural areas, with the aim of combining living, working and community through co-living, co-housing and co-working, and thus to make structurally weak locations in the rural areas more attractive (Dähner et al. 2019; Sinning/Spars 2018). The case of municipally-owned housing companies also illustrate that innovation means not only material and technical innovation but above all social innovation, as described by the German sociologist Wolfgang Zapf (1994) as new ways of achieving goals, in particular new forms of organisation, new regulations, new lifestyles, that change the direction of social change, solve problems better than previous practices, and are therefore worthy of imitation and institutionalisation.

4. Conclusion

The innovative organisation of public services in rural areas is a complex challenge. It is understood not only as a technical challenge, but also as an economic, political-administrative, social and cultural challenge:

- The development of innovative local infrastructure to create or maintain equal living conditions is a technical issue, since digitalisation is increasingly being seen as the answer to fundamental structural problems of rural regions. Nevertheless, we are currently dealing with many isolated solutions that are hardly linked to each other. This raises, for example, the question of what technical development is necessary to reconcile solution strategies in different policy fields such as health, care, mobility, housing and energy.



- The digitalisation of rural areas is an economic issue. While many urban areas have enormous problems expanding their infrastructure in step with population growth, structurally weak rural regions often struggle with a lack of capacity utilisation, rising residual costs and a progressive centralisation of their infrastructure. In contrast to private sector companies, LPEs and their public services are characterised by their local presence, which is often difficult to realise under market-economy conditions. In so far, we may argue that LPEs and their nature could be seen as part of an organisational vocabulary which enables rural municipalities to move from standardised service production to more flexibility, innovation and adaptability as well as scalable solutions that offers robustness to crises and challenges. At the same time, LPEs cannot simply act as “stopgaps” if expansion is not attractive for private sector companies. Therefore, it remains somewhat open whether LPEs will continue to be central anchors and promoters for future public service provision or whether there will be (further) political tendencies to push the state back in favour of the private sector. In any case, it is to be expected that LPEs and their public owners in rural regions will be subject to constant pressure to adapt, whether in terms of their potential for innovation and digitalisation, changing expectations of citizens and policy makers or even efficiency gains.
- The provision of digital is a political-administrative issue which requires the political will of local public leaders and, above all, committed citizens. In addition, cooperation with other municipalities or state and non-state actors is necessary. Standardisation instead of isolated solutions is one of the prerequisites for social acceptance and economic success. To ensure that equal living conditions can actually be promoted through public sector innovations, their diffusion and scalability is a critical success factor that should already be taken into account at an early stage of the development process. Therefore, the question arises, for example, how cooperatively provided services can be developed into digital innovation hubs and how the contribution of innovation and digitalisation to ensure equal living conditions can be measured.
- Finally, the digitalisation of rural areas is a socio-cultural issue, as the success of innovations depends to a large extent on the collaboration of different actors. The development and adaptation of a digital infrastructure can only succeed if actors from science, politics and administration, public and private economy as well as users (civil society) work together. Of central importance is therefore the acceptance of future users and employees in local governments, who must bear forms of digital and innovative service provision. Questions that arise from this are how smart technologies can be designed through co-creation so that they are accepted by both users and employees in local public sector organisations, and what new forms of work, competences, values, attitudes and organisational culture are required to achieve this.



5. Literature

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