The various roles of demand in regional development - a conceptual analysis

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Abstract

This paper contributes to the literature on new regional industrial path development by highlighting the multiple roles that demand can play in regional development. We develop a conceptual framework relating different roles of demand with different types of new path development. Based on the literature on regional development, we differentiate between the role of demand as anonymous consumer, sophisticated buyer, active co-developer, public procurer, and norm and value setter. These roles influence different types of new path development, including path extension, path renewal and new path creation. New path development can be triggered by changing norms and values in the society (e.g. environmental concerns and the growing demand for cleaner technologies), public procurement for innovation (governments demand new products or services and thereby steer economic development) or by users modifying existing products or developing novel solutions that are not yet on the market (e.g. user innovations). To lead to a new industrial growth path in a region, local firms need to sustain, establish and grow their market shares, pointing to the role of anonymous consumers. The various roles of demand, as well as its effect on new path development, depends on the geographical context. Changes of demand in one region might contribute to path extension, path renewal or new path creation in other regions. We argue that a nuanced view on demand will add a novel dimension to the debate on new path development.
1. Introduction

The literature on regional development has recently been devoting considerable attention to the question of how new industries emerge and evolve over time - a research theme that is often framed under the term ‘new (regional industrial) path development’. The initial and agenda-setting contributions on this topic stem from evolutionary economic geography (Boschma and Frenken, 2006; Boschma and Martin, 2010) and typically consider new path development as outcome of endogenously triggered branching processes, by which firms over time branch out into new but technologically related fields (Frenken et al., 2007; Neffke et al., 2011). Recent contributions from institutional and political economic geography have sought to shed light on the scope and role of institutions, policy, agency, and exogenous knowledge sources (e.g. Dawley et al., 2015; Isaksen and Trippl, 2016; Morgan, 2013; Pike et al., 2016). All these works have in common that they regard innovation as the fundamental driving force behind new path development (Isaksen and Trippl, 2016; Trippl et al., 2017).

While the existing literature has enhanced our understanding of different aspects of innovation as motor for regional transformation, it is surprisingly silent on one noteworthy driver for change, namely, demand. In this paper, we argue that new path development can also result from changes in local, national or global demand, when consumers change their preferences and request new or different products or service. Thus, we see consumers as contributing to regional change and demand as one additional denominator for new path development. In this context, we define demand as consumer needs and wants, that is, the desire or preference to acquire a product or service. It can be private or public and stem from end-users, businesses or governments (NESTA, 2010). One of the central arguments in the literature on regional development is that innovation performance and competitiveness of firms is based on close interaction between various actors in the regional environment, mainly emphasizing characteristics of territorial innovation systems (Moulaert and Sekia, 2003) in form of knowledge linkages between firms and with knowledge infrastructure organisations (Isaksen et al., 2018; Trippl et al., 2017; Isaksen and Trippl, 2016). However, as noticed by Malmberg and Power (2005: 280), “in many business areas, demand, consumption processes, and customers have a determinant effect on the innovation process”, and there consequently is a need for better understanding of demand functions also when discussing regional development. The influence of demand on regional development remains largely unexplored, overlooking that economic development is subject to demand conditions that vary across territories (Grabher and Ibert, 2018).

The aim of this paper is to further our understanding on the role of demand in new regional industrial path development. In order to do so, we develop a conceptual framework relating different roles of consumers with different types of new path development. Studying the role of consumers becomes particularly, though not exclusively, important in a shift from technical to social aspects of innovation, as in the context of grand societal challenges (Cagnin et al., 2012). Here, the view of innovation systems as ‘production systems’ has to be extended by a perspective on changing consumer behaviours, norms and values through participation of civil
society, businesses and government, crucial for ensuring the acceptance and diffusion of innovations in the society.

The paper is organised as follows. First, it gives an overview of the literature on new regional industrial path development, identifying forms and triggers of new path development. Second, the paper reviews the broader literature on regional development and innovation, by focussing on perspectives on demand and the roles that are ascribed to consumers. Based on the reviewed literature, we develop a conceptual framework discussing the role of consumers in new path development. Finally, the paper ends with conclusions and gives an outlook for future research.

2. Review of the literature

2.1. Different forms of regional industrial path development and their determinants

Several typologies have been developed to capture different forms of new path development. Traditionally, the literature has focused on the degree of novelty and distinguished between path extension, path renewal and new path creation (Trippl and Otto, 2009; Hassink, 2010; Boschma and Frenken, 2011; Tödtling and Trippl, 2013). More recent studies have also added other dimensions when discussing forms of path development such as scope of change (e.g. niche development) and nature of mechanism (e.g. path importation, path branching, path diversification) (see Grillitsch et al., 2017 for an overview).

In this paper, we follow the traditional differentiation based on the degree of novelty of a path development. However, in line with recent studies, we argue that different mechanisms are needed to reach various degrees of novelty. Thus, the forms of new path development, we refer to, are the following. **Path extension** refers to continuation in regional industrial structures, mainly achieved via incremental product and process innovations in existing sectors. A failure to ensure path extension might lead to **path exhaustion** – a decline of previously successful path due to institutional, functional or political lock-in (Tödtling and Trippl, 2005; Hassink, 2010). **Path renewal** refers to an update and diversification of existing industrial structures in the region. It might emerge of as a result of related and unrelated knowledge combinations, inclusion of new technologies into established industries and upgrading of skills and competences. **Path creation** is a result of radical change in industrial structures (Trippl and Otto, 2009; Boschma & Frenken, 2011; Grillitsch et al., 2017). It might be new to the region when an established industry is set up via importation and branching or new to the world when it is often associated with new knowledge-intensive activities stemming from academia in the region, but can be also an outcome of user-driven innovations, social innovations or new business models (Trippl and Otto, 2009; Grillitsch et al., 2017; Trippl et al., 2017).

Knowledge exchange and learning processes between firms and between firms and knowledge infrastructure are considered the most important trigger leading to one or another form of path development. In the case of path extension, firms mainly learn from other actors in already established industrial paths. Path exhaustion occurs due to the lack of complementary
knowledge in the region and lack of organisational learning processes and absorption capacity (Isaksen and Trippl, 2016). Path renewal requires the combination of different types of knowledge. Traditionally, in line with the arguments of related variety, the focus has been on knowledge spillovers between collocated firms with different but related activities (see e.g. Boschma and Wenting, 2007; Neffke et al., 2011). However, recent studies have pointed out that knowledge exchange with actors in initially unrelated industries can lead to unexpected combinations and can positively impact industrial renewal (Grillitsch et al., 2017). New path creation is often associated with a strong scientific knowledge base in the region as well as the inflow of individuals and firms that possess the necessary capabilities and resources to make use of that knowledge base (Grillitsch et al., 2017; Trippl et al., 2017).

Since learning and knowledge exchange are socially embedded processes, regional institutions and policy practices also seen as important determinants facilitating or hindering new path developments (Isaksen and Trippl, 2016; Sotarauta and Suvinen, 2018). Regional policy makers might promote new paths by creating arenas for knowledge exchange, setting up schemes for attracting actors with complementary skills and resources to the region or, on the contrary, hinder new constellations due to political lock-ins (Tödting and Trippl, 2005; Isaksen and Trippl, 2016). Institutions provide a framework where actors’ behaviour can unfold. They create incentives either to innovate and exchange knowledge or question the value of innovation and foster secretive behaviour (Zukauskaite and Moodysson, 2015; Sotarauta and Suvinen, 2018).

Although recent contributions have moved away from solely firm-focus and include also individual actors, policy and institutions, we find that the majority of studies have a predominant supply-focused view on formation and transformation processes of regional industries. Only a few studies touch upon the importance of demand for the long-term development of regions. Most explicitly, Martin and Coenen (2015) address the role of government in influencing regional demand conditions through public procurement. Public authorities in Scania, Sweden, created a market for regionally produced biogas through the use of biogas in local public transport. Simultaneously, the development targets set by the regional authorities created legitimacy for the further development of the industry and triggered new entries in the industry. Further contributions touch upon the role of the state as a purchaser (Morgan, 2013) or the influence of national market regulations and regional policy actions (Dawley, 2014; Dawley et al., 2015; Martin and Martin, 2017) for new path development. Grundel and Dahlström (2016) introduce a quadruple and quintuple helix approach to RIS, proposing a stronger consideration of civil society in regional innovation and development. Grillitsch et al (2017) mention user driven innovations as a source for new path creation without further elaboration. These contributions leave the actual mechanisms and roles played by demand largely undiscussed. It seems fair to state that the current literature on new path development has left demand conditions largely unconsidered. However, new path development is not always driven by new technological discoveries, but can also occur as a response to demand influences (i.e. changing consumer needs and wants), and that the existence (or creation of) demand is crucial for any new path to be established and sustained.
2.2. The role of demand in the literature on regional development

Innovation is increasingly demand driven, and in order to understand regional development, there is a need to discuss the diverse roles that demand can play (Malmberg and Power, 2005). In this section, we provide an overview of various roles that have been pointed out explicitly or implicitly in studies on regional development (see Table 1).

Early works on Italian industrial districts and innovative milieus (Camagni, 1991; Maillat et al., 1995) discuss how local production systems are affected by changing demand conditions in a globalizing world economy. Industrial districts are typically characterised by small and co-located manufacturing firms, often serving local markets. This has been the dominating form of work organisation until the mid-20th century, when mass-production technologies led to a surge of large multinational companies, and when the patterns of demand changed toward the consumption of standardized mass products. While the further growth of vertically integrated multinational companies seemed to be inevitable, industrial district scholars noticed an opposite trend (Piore and Sabel, 1984). They argued that increasing global competition is driving many firms out of mass markets for standardized products. To survive the global competition, firms have to specialize and move towards high-quality and customised products. Such a specialisation requires close collaboration between manufacturers and service providers, which can best be achieved in an industrial district setting (Harrison, 2007). While this literature touches upon changing demand as driver for industrial transformation, the specific role of demand is not further defined. Rather, it is treated as anonymous consumer, without considering any functional connections between supply and demand in terms of user-producer feedback, interactive learning or knowledge exchange, and without a consideration of particular characteristics and or roles of consumers. It resembles the deductive approach discussed by Grabher and Ibert (2018), where consumers do not have an active part in innovation, but can reject new products or services if they do not meet their expectations.

The literature on clusters offers a similar argument on the importance of co-location despite increasing globalisation (Porter, 1998; Porter, 1990). Notwithstanding a number of critical evaluations (Martin and Sunley, 2003), the cluster concept has become widely accepted by researchers and policy makers and has also been taken up in the debate on new path development (Asheim et al., 2017). While the cluster concept shares many arguments with earlier territorial innovation models such as industrial districts, it goes one step further in its conceptualisation of demand. The reason why clustered firms have a competitive advantage over non-clustered firms is typically ascribed to four attributes of clusters (Porter, 1998), among them local demand conditions understood as the nature of home-market demand for the industry’s products or services. Thus, local demand is treated as one essential factor that may explain differences in innovation performance. According to the cluster theory, co-location between producers and consumers, notably sophisticated buyers that request the latest technological innovations, offers producers advanced knowledge of the market. This gives clustered firms an advantage over firms that lack geographical proximity to sophisticated buyers and do not have the same immediate awareness of latest trends and market developments. In
the cluster literature, local demand is seen as important for expressing product and service requirements that producers try to meet and consumers are perceived as sources of knowledge.

The literature on RIS has yet another view on the role of demand (Cooke, 1992; Asheim and Gertler, 2005; Isaksen et al., 2018). The RIS concept is grounded in innovations systems theory and shows close connections to other territorial innovation models. In line with industrial districts and clusters, it draws on Marshall’s (1920) work on the innovation-enhancing effects of a local concentration of firms and related organisations. Innovation is seen as a key driver for economic development, and as the outcome of non-linear, collaborative and cumulative learning processes that are shaped by formal and informal institutions at various spatial scales. The role of demand is not discussed explicitly, however, the functioning of RIS is seen as based on intense collaboration and interactive learning between a wide range of actors, including firms, universities, R&D organisations, and comprising also consumers and users. In particular for synthetic knowledge base industries (Asheim and Gertler, 2005; Asheim and Coenen, 2005) that draw on experiences-based innovation modes (i.e. doing, using and interacting DUI), the interaction and close collaboration between users and producers is seen as vital (Isaksen, 2016; Zukauskaite and Moodysson, 2016). Often in the case of complex products (e.g. industrial machinery), consumers contribute to innovation by providing feedback to manufacturers and demanding products with certain functionalities, or they actively co-develop innovations by suggesting improvements to existing products or by collaborating in the search of solutions for practical problems. The consumer is seen as one of many actors in a RIS. Its role is mostly understood as a provider of knowledge input for innovation, underscoring the emphasis on the supply side of innovation in territorial innovation models.

Furthermore, scholarly work in the field of regional governance (Macleod and Goodwin, 1999; John, 2001) maintain that the state can play an active role in influencing regional development. One of the steering mechanisms is public procurement for innovation, where the state purchases certain products or technologies and takes the role of a customer (Uyarra and Flanagan, 2010; Uyarra et al., 2017). Public procurement, usually understood as the acquisition of goods and services by a government or public authority1, accounts for a significant share of the overall demand for goods and services (Uyarra and Flanagan, 2010). Scholarly works on public procurement, though, usually take a non-spatial approach or focus on the national policy level (e.g. Edler and Georghiou, 2007; Edquist and Zabala-Iturriagagoitia, 2012). As mentioned above, among the few exceptions is Morgan (2013), who draws attention to multiple roles of the state in shaping new path development in old-industrial regions, emphasizing “its roles as producer, regulator, animateur and purchaser” (Morgan, 2013: 337). The role as a purchaser refers to a situation when the state acquires goods and services from private sector suppliers. Martin and Martin (2017) argue that local governments need both formal and governance capacities to successfully steer regional development, and provide a case where regional policy actors stimulated the emergence of a new industrial growth path through a mix of public procurement and regulation setting. Martin and Coenen (2015) address the role of government in influencing demand conditions through public procurement. These contributions show that

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1 For different types of public procurement, see e.g. Uyarra and Flanagan, 2013.
the public sector can play a role in directly or indirectly influencing demand conditions for certain products or services, which can in turn influence regional development.

A more nuanced perspective on the role of consumers is provided in recent works on consumption systems and economic valuation (Jeannerat and Kebir, 2016; Macneill and Jeannerat, 2016). According to Jeannerat and Kebir (2016), consumers do not necessarily have to act as co-developers in order to play an active role in innovation. Via intermediaries and communities of users, consumers can act as valuators of innovation efforts and provide feedback and express the demand for new product characteristics. Rather than being anonymous and a-spatial, these consumers are active communicators of values and attitudes that producers need to meet for their products to succeed on the market. Thus, firms coordinate their innovation activities in response to market signals provided by consumers and in relation to the strategic positioning of other producers in the market. Distribution channels are established and directed towards the end consumer (e.g. through specialized retailers and media coverage). Estimations about the future aggregated demand for a product are communicated by various intermediaries (e.g. consumer organisations and interest groups). The authors maintain and that a stronger consideration of end consumers as well as the institutional arrangements influencing and intermediating consumer voices can contribute to better understanding regional economic change (Jeannerat and Kebir, 2016; Macneill and Jeannerat, 2016; Grabher et al., 2008). Consumers may trigger incremental innovation, as producers react on the aggregated voice of an established consumer community. Sometimes, consumers can stir innovation by articulating and making identifiable a new or changing demand for a certain product; in other cases, they may engage directly in innovation in the forms of co-development, interpretation or experimentation (Jeannerat and Kebir, 2016; Macneill and Jeannerat, 2016). These works deal explicitly with the mechanisms of how demand and changes thereof influence innovation. What remains less explicit is the link to regional development, i.e. the spatial implications of demand and how consumers impact new path development.
Table 1: Different roles of demands in the literature on regional development

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
<th>Key literature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous consumer</td>
<td>General market trends and global demand conditions influence local production systems</td>
<td>Industrial districts (Becattini 1978; Saxenian 1994), innovative milieus (Camagni 1991; Maillat 1991)</td>
</tr>
<tr>
<td>Sophisticated buyer</td>
<td>Co-location with sophisticated buyers offers producers advanced knowledge of the market</td>
<td>Clusters (Porter 1998, 1990)</td>
</tr>
<tr>
<td>Active co-developer</td>
<td>Consumers contribute to innovation by 1) providing feedback to producers, 2) participating in innovation processes (e.g. DUI); 3) generating own products/services (e.g. open source software)</td>
<td>Regional innovation systems (Asheim and Gertler 2005) and learning regions (Asheim 1996; Morgan 1997)</td>
</tr>
<tr>
<td>Public procurer</td>
<td>Public procurement as policy tool to steer innovation and product development, and potentially also regional development</td>
<td>Regional governance (Macleod and Goodwin 1999; John 2001; Morgan 2013), Public procurement (Edler and Georgiou 2007; Edquist and Zabala-Iturriagagoitia 2012)</td>
</tr>
<tr>
<td>Norm- and value-setter</td>
<td>Changing consumer norms, values and habits lead to emergence of new markets; interest groups act as valutators and mediators between producers and consumers</td>
<td>Economic valuation (Jeannerat and Kebir, 2016; MacNeill and Jeannerat, 2016)</td>
</tr>
</tbody>
</table>

Source: own draft

3. Conceptual discussion - Relating demand to new regional industrial path development

In this section, we provide a conceptual discussion relating the multiple roles of demand outlined above to the notion of new path development (see Table 2).

*Anonymous consumers* influence regional industrial path development via market trends in their aggregated form. Aggregated demand as pure market shares can lead to different types of new path development. It is not likely to trigger a *new path creation*, since markets for non-existing industries can hardly be analysed and foreseen (Sarasvathy, 2001). However, for a new growth path to establish itself and to reach a critical mass of companies to have an impact on regional economy, there is a need for growing markets and secured market shares. Since pure local markets hardly exist in today’s globalised economy, such demand is most likely to take place at a national and/or global scale.
Established consumer bases and clearly divided market shares reinforce the continuation of existing industry structures, thus leading to the extension of regional industrial growth paths. Anonymous demand is thus important for securing and preserving market shares of products produced (and processes applied) by the industry. At the same time, a progressing decrease in demand for certain products is likely to lead to shrinking market shares, slowly but steadily causing exhaustion of the path over time. Finally, changing overall demand for certain products can also cause path renewal, due to overall development of the markets. These path development processes could be observed in automobile industry in recent years. The market share of diesel driven cars are constantly shrinking (Marketwatch, 2017) which could potentially reduce profitability of established car manufacturers and lead to path exhaustion in some regions. Simultaneously, it has become possible to estimate the market share for electric cars. Their market share is steadily growing, suggesting the interest from mainstream consumers (Graham-Rowe et al. 2012; Wesseling et al., 2014). These processes trigger interindustry learning between established car manufacturers and local and foreign firms in other industries such as battery manufacturing in a form of collaborations, acquisitions and contracts (Klug, 2013), leading to the processes of path renewal in the affected regions.²

Sophisticated buyers actively request the state of the art of technological development and thereby provide companies with knowledge regarding the development of the market – upcoming market needs. Close interaction between sophisticated buyers and producers is therefore expected to facilitate a path renewal and path extension of regional industries. In other words, path renewal and path extension do not happen only as a reaction to changes in aggregated demand, but is rather based on direct interaction between consumers and producers, allowing the industry notice changes in demand and take measures to prevent path exhaustion via inter-industry learning and/or upgrading of established products. An example of the latter is one of the newest products of the food packaging company Tetra Pak, where a mature machine for milk packaging was altered for aseptic frozen products packaging, in order to meet the sophisticated demand of a consumer (in this case a Chinese dairy producer) (Sikes, 2017). This new type of packaging opens for possibilities to tap into ice cream market for both Tetra Pak and dairy producers, who earlier had limited possibilities to develop products, requiring freezing technologies.

The concept of sophisticated buyer has emerged in the literature on clusters (Porter, 1998), suggesting that collocation between users and producers positively effects the competitiveness and innovation performance of firms. However, since the majority of markets are of a global character, sophisticated buyers can as well be located at another geographical scale (as in the case of Tetra Pak).

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² It is important to point out that anonymous demand by no means is the only trigger for change in car industry. It is an outcome of coevolution between advancements in technology, behavioural change, policy and institutional development (see e.g. Geels, 2012). However, as noticed Wesseling et al, 2014, the possibility to estimate (high) sales of electric vehicles was important trigger for many companies to enter this market segment.
The role of consumers as active co-developers is strongly linked to the provision of knowledge in the innovation processes as well as to the search of solutions for practical problems. Differently from sophisticated buyers, active co-developers do not only specify the needs of future markets, but are also actively involved in developing new solutions. Active co-development can take different forms and thus contribute to new regional industrial path development in diverse ways (Grabher and Ibert 2018). When entirely new industries emerge (i.e. new path creation), their offerings – products and services – need to be checked against consumer needs and demands in a very early stage (Ries, 2011; Malerba, 2007). One way is to test offerings with lead users, who are ahead of the mass market and can even contribute with their own custom solutions (von Hippel, 1986), and in this way contribute to the creation of new regional industrial path. Producers can also open up the development of their established products allowing users to introduce changes, catering to their specific needs and/or solving certain limitations. A typical example of the latter is the software industry, where the use and modification of many programming codes is open to different user groups, who collectively contribute to product development (Grabher and Ibert, 2018). By further advancing the product, users contribute to its sustainment on the market and as a result to a path extension in affected regions. Finally, users can also act as bridges for inter-organisation and industry learning. Consumers are increasingly turning into prosumers (professional users) – developing own solutions to cater to their needs when a proper alternative on the market is missing (Grabher and Ibert, 2018; also von Hippel, 1986). Those solutions can be later commercialized and diffused by users themselves and/or other firms in the industry facilitating path renewal of existing industry structures, largely driven by increased maturation of products and services.

The value of consumers as active co-developers is linked to knowledge sharing. It is widely accepted that proximity facilitates knowledge exchange due to decreased transactions costs, joint norms, and increased trust (Maskell and Malmberg, 2007; Gertler, 2004). Physical proximity is especially important for the exchange of tacit knowledge and facilitates learning by doing, using and interacting. Thus, collocation of users and producers in the same region eases knowledge exchange and as a result also regional industrial change. However, as shown with a software example, physical proximity is a facilitating, but not a necessary condition for collaboration between users and producers. Thus, users located in one region may influence new path development in another region – where the producers are located.

The acquisition of goods and services through public procurement accounts for a significant share of the demand. Therefore, public procurement is likely to impede path exhaustion of industries. It can both lead to a new path creation and a path extension – depending on the novelty of products (or services) procured. A differentiation must be made between general public procurement and public procurement for innovation (Edquist and Zabala-Iturriagagoitia, 2012). In the case of general public procurement, public sector organizations demand a product (or a service, or a combination) and provide exact specifications (e.g. build a sound isolating wall), which restrains possibilities for innovation. Thus, public authorities will strengthen existing markets through increasing markets shares, leading to path extension. Public procurement for innovation, in contrast, occurs when public sector organizations place an order for a specific function to be fulfilled. Instead of concrete product characteristics, they specify
only the outcomes that should be achieved (e.g. reduce sound levels in a given area) (Edquist and Zabala-Iturriagagoitia, 2012; Edler and Georghiou, 2007). This allows for a broader range of product solutions and thereby stimulates innovation. In this case, public (innovation) procurer can provide considerable momentum to building up new industries which may lead to new path creation (e.g. the case of offshore wind power described by Steen, 2016). This type of demand has clear administrative boundaries. At the same time, the initiators of public procurement tenders are, at least in the European context, not allowed to favour local bidders as opposed to those coming from other places. Thus, identification of demand in one administrative region might trigger new path creation or facilitate path extension in another area.

Consumer as norms and values setter can be understood in narrow and broad sense. In a narrow sense, it refers to the norms and values of established consumers in a particular industry and of particular market segments. Since norms and values are persistent over time, changing slowly and often only via generational shifts (Williamson, 2000), they tend to contribute to extensions of established paths, since actors within the industry cater into normative views of their established consumers. Industries could gain indications of these norms and values via what Grabher and Ibert (2018) refers to as consumer communities (organized by producers around their products) and user communities (self-organized around brands, firms, products). By discussing contexts and situations in which products are used and providing encouragement and critique regarding new features, consumers also reveal their beliefs, attitudes and expectations.

However, norm and value setters also contribute to the creation of entirely new paths. General public awareness and acceptance are crucial in the early stages of a new industry formation (Aldrich and Fiol, 1994). In other words, consumers contribute to the establishment of new paths, by accepting and legitimizing new types of products and/or services that a new type of industry is providing. An example for this is the emerging industry of protein sources developed from insects which is driven by a growing valuation of environmental aspects among certain consumer groups.

In a broad sense, consumers can play a role in regional development by contributing to the discourse in society at large. That is new path creation or path renewal is triggered or facilitated by norms and values in the society that new and established firms perceive as important, and not (only) in their particular industry/consumer base. This can be captured by debates in different media channels, formation of NGOs, interest communities and others. For example, in a dawn of electric cars, the market shares could hardly be estimated and analysed, and a new market had to be created. One of the reasons why new and established car manufacturers engaged into electric cars were changing norms and values in the society at large – increased concern with global warming and involvement in climate related matters (Geels, 2012). Similarly, increasing concerns about the environment among consumers have also opened up for new services around the sharing economy, e.g. car sharing, where the population particularly of urban areas cultivates new lifestyles that demand new mobility concepts.
Similar processes can be observed in the food industry. As the interest in healthy and environmental friendly eating is more pronounced in urban areas, food producers that specialise in healthy and environmentally friendly food are more present in urban regions. Another example is protein sources developed from insects. In Europe, market shares for such novel food products are hard to estimate, since the sales of insects as food is currently legally prohibited in many European countries. However, some activities are taking place. New companies are being established, focusing on product development and promotion of the idea of insects as food, while waiting for food laws to change. Some mature players such as luxury restaurants introduce insects based meals as a temporary option on their menu (for example, Grand Hotel in Lund, Sweden). These are examples of path renewal efforts of mature industries taking place among others due to a changing societal debate. Furthermore, several new studies argue that social innovation and social entrepreneurship could also form new regional industrial growth paths (Grillitsch et al., 2017; Trippl et al., 2017). These types of activities are largely driven by societal goals that are perceived as important by consumers, suggesting that consumers as a norm and value setter play a role in a process of a new path creation.

Norms and values are space and time contingent and can differ between regional contexts, in particular between urban and rural areas as mentioned in the example above, as well as between different periods of time (see also Zukauskaite et al., 2017). This suggests that the societal debates that take place within a certain territorial area as well as the norms and values within certain consumer-communities may differ, creating possibilities for different forms of industrial paths development to exist simultaneously (e.g. increasing consumption of meat on the one hand, and increasing demand for vegetarian and vegan food on the other hand). Furthermore, since norms and values change over time, new to the region industry can be imported once consumers start accepting and legitimizing certain type of activities that previously were not acceptable.
<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
<th>Relation to regional industrial path development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous consumer</td>
<td>General market trends and global demand conditions influence local production systems</td>
<td>• <em>Path extension</em> – securing market share important for preserving established paths;</td>
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<tr>
<td></td>
<td></td>
<td>• <em>Path exhaustion</em> - loss of market share might lead to path exhaustion;</td>
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<td></td>
<td></td>
<td>• <em>Path renewal</em> – via interindustry learning due to growing market shares;</td>
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<tr>
<td></td>
<td></td>
<td>• For entirely new paths, markets cannot be analysed, but need to be secured for a new path to sustain.</td>
</tr>
<tr>
<td>Sophisticated buyer</td>
<td>Co-location with sophisticated buyers offers producers advanced knowledge of the market</td>
<td>• <em>Path renewal</em> - further adaptation of the products/services in established paths due to new and sophisticated needs of the consumer</td>
</tr>
<tr>
<td>Active co-developer</td>
<td>Consumers contribute to innovation by 1) providing feedback to producers, 2) participating in innovation processes (e.g. DUI); 3) generating own products/services (e.g. open source software)</td>
<td>• <em>New path creation</em> – contributing by verifying entirely new products to the market;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <em>Path renewal</em> – further adaptation of the products/services in an established path with consumers;</td>
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<td></td>
<td></td>
<td>• directly involved, not least via prosumer activity;</td>
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<tr>
<td></td>
<td></td>
<td>• <em>Path extension</em> – contributing to sustainment of established products via incremental improvements.</td>
</tr>
<tr>
<td>Public procurer</td>
<td>Public procurement as policy tool to steer innovation and product development, and potentially also regional development</td>
<td>• <em>New path creation</em> – if used as innovation procurement;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <em>Path extension</em> – if used as product procurement with detail specification</td>
</tr>
<tr>
<td>Norm- and value-setter</td>
<td>Changing consumer norms, values and habits lead to emergence of new markets; interest groups act as valuations and mediators between producers and consumers</td>
<td>• <em>Path extension</em> – catering into established norms and habits to preserve market share;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <em>New path creation</em> and <em>path renewal</em> – change in norms and values (often related to generation shifts) leads to upgrading of existing products as well as the development of entirely new alternatives – creation of new markets that could be attractive to consumers with a new set of values.</td>
</tr>
</tbody>
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Source: Own draft
4. Conclusions

In this paper, we called for a stronger consideration of the role of demand in the academic debate on a new regional industrial path development. By reviewing the regional development literature, we identified multiple roles that demand may play, including anonymous consumer, sophisticated buyer, active co-developer, public procurer, and norm and value setter. These roles can co-exist and simultaneously influence different types of new path development. New path creation can be triggered by changing norms and values in society at large (as in the case of environmental concerns that open up possibilities for new types of product or services), by public procurement for innovation, or by consumers who help to verify, test and further develop products and services or even develop own novel solutions. For new firms, technologies or products to turn into a new growth path – i.e. to gain a critical mass that has a significant impact on the regional economy – there is a need to establish and secure market shares, pointing to the importance of the anonymous consumer. Path renewal can be triggered by growing market shares in a new segment of products or services, by requirements for innovation expressed by sophisticated buyers, by changes introduced by active co-developers who may act as bridges between different industries, or by changing norms and values in the society and among consumer groups. Path extension is supported by public procurement as well as by established norms and values of mainstream consumers. Active co-developers might contribute to sustaining established paths by providing incremental changes while market shares (anonymous consumer) are a must for any regional industrial growth path to persist.

Previous studies have pointed at a multifaceted geography of new regional industrial path development. They propose that new path development is the outcome of endogenous and exogenous knowledge sources, policies and regulation at different spatial scales (Grillitsch et al., 2017; Tripl et al., 2017; Sotorauta and Suvinen, 2018). Including the role of demand adds another, and as we argue significant, analytical dimension to the debate on new path development. Demand for products and services developed in one region can be found in various locations. They transcend between physical and virtual spaces, might be temporary or stable over time, confined to a narrow consumer group or common to the general public. This does not mean that the location of consumers is irrelevant (Grabher and Ibert, 2018). It is rather the opposite. Improved means of communication open up possibilities for rapid capturing of changes in demand and for interacting with users, allowing to a more nuanced understanding of demand. Consumer norms and values, need and demands depend on the context in which they operate. Changes on the demand side in one region may well contribute to path exhaustion, extension, renewal or new path creation in another region.

In order to understand the factors underlying new regional industrial path development, we argue that demand and supply must be studied in an interrelated manner. While endogenous and exogenous knowledge sources (i.e. the supply side of innovation) are crucial for new path development, they might be triggered by changing demand conditions such as growing market segments or the needs and requirement expressed by consumers. The need to better understand the demand side of innovation will open up new avenues for research on regional development.
References


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