The Multiple Roles of Demand in Regional Development
A Conceptual Analysis

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Keywords: regional development; demand; innovation; new path development

JEL: R11; R58; O10 ; O30

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1. Introducing new path development

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 an 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 contributions 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 the different aspects of innovation as the driving force 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 be the result of changes in local, national or global demand, when consumers change their preferences and request new or different products or services. Thus, we see that consumers contributing to regional change and demand as an 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 the competitiveness of firms is based on close interactions between various actors in the regional environment, mainly emphasizing the characteristics of territorial innovation systems (Moulaert and Sekia, 2003) in the 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 Malmberg and Power (2005: 280) have noted, "in many business areas, demand, consumption processes, and customers have a determinant effect on the innovation process", so there is consequently a need for a better understanding of demand functions when discussing regional development, as well. The influence of demand on regional development remains largely unexplored, neglecting 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 this, we have developed 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 assuming a perspective on changing consumer behaviours, norms and values through

participation of civil society, businesses and government, crucial to ensuring the acceptance and diffusion of innovations in society.

The paper is organized as follows. First, an overview of the literature is provided on new regional industrial path development, identifying forms and triggers of new path development. Second, the broader literature on regional development and innovation is reviewed, focusing on different perspectives on demand and the roles that are ascribed to consumers. Based on the reviewed literature, we then develop a conceptual framework in which we discuss the role of consumers in new path development. Finally, we end with conclusions and offer suggestions 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 among 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 that we refer to are the following. *Path extension* refers to a 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* – the decline of a previously successful path due to institutional, functional or political lock-ins (Tödtling and Trippl, 2005; Hassink, 2010). *Path renewal* refers to the update and diversification of existing industrial structures in a region. This might occur as a result of related or unrelated knowledge combinations, the inclusion of new technologies into established industries or an upgrading of skills and competences. *Path creation* is the result of radical change in industrial structures (Trippl and Otto, 2009; Boschma & Frenken, 2011; Grillitsch et al., 2017). This might be new to a 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 which stem from academia in the region, but it 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 with knowledge providers 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 industrial paths which are already established. Path exhaustion occurs due to the lack of complementary knowledge in a region and a lack of organizational 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 spill overs 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 an influx 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 are also seen as important determinants facilitating or hindering new path development (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, hindering new constellations due to political lock-ins (Tödling and Trippl, 2005; Isaksen and Trippl, 2016). Institutions provide a framework where actors' behavior can unfold. They create incentives either to innovate and exchange knowledge, or question the value of innovation and foster secretive behavior (Zukauskaite and Moodysson, 2015; Sotarauta and Suvinen, 2018).

Although recent contributions have moved away from solely firm-focused and also include individual actors, policy and institutions, we find that the majority of studies have a predominantly 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 the existence (or creation of) demand is crucial for the establishment and sustainment of all new paths.

2.2. The role of demand in the literature on regional development

Innovation is increasingly driven by demand, 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 characterized by small and co-located manufacturing firms, often serving local markets. This was the dominant form of work organization until the mid-twentieth 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-produced goods. While the further growth of vertically integrated multinational companies seemed inevitable, scholars studying industrial districts noticed an opposing trend (Piore and Sabel, 1984). They argued that the increase in global competition was responsible for driving many firms out of mass markets for standardized products. To survive the global competition, firms would have to specialize and move towards high-quality and customized products. Such a specialization would require close collaboration between manufacturers and service providers, which could best be achieved in an industrial district setting (Harrison, 2007). While this literature touches upon a change in demand as the driver for industrial transformation, the specific role of demand is not further defined. Rather, it is treated as an *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 or the roles of consumers. It resembles the deductive approach discussed by Grabher and Ibert (2018), where consumers do not play an active part in innovation, but are able to 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 globalization (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 discussed 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 conceptualization 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* who 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 the latest trends and market developments. In the cluster literature, local demand is seen as important for expressing product and service requirements that producers attempt to meet, meaning that 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 innovation system 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 organizations. 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, how well RIS function is based on intense collaboration and interactive learning between a wide range of actors, including firms, universities, R&D organizations, and also comprised of consumers and users. For engineering-based (synthetic) industries (Asheim and Gertler, 2005; Asheim and Coenen, 2005) that draw upon experience-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 for solutions to 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) maintains 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 over the role of the 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 authority[1], 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

[1] For different types of public procurement, see e.g. Uyarra and Flanagan, 2013.

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 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 consumers play 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, providing feedback and expressing the demand for new product characteristics. Rather than being anonymous and a-spatial, these consumers are active communicators of the 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 organizations and interest groups). The authors maintain 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 to the aggregated voice of an established consumer community. Sometimes, consumers can spur 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, influences 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

Role	Description	Key Literature
Anonymous consumer	General market trends and global demand conditions influence local production systems	Industrial districts (Becattini 1978; Saxenian 1994), innovative milieus (Camagni 1991; Maillat 1991)
Sophisticated buyer	Co-location with sophisticated buyers offers producers advanced knowledge of the market	Clusters (Porter 1998, 1990)

Role	Description	Key Literature
Active co-developer	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)	Regional innovation systems (Asheim and Gertler 2005) and learning regions (Asheim 1996; Morgan 1997)
Public procurer	Public procurement as policy tool to steer innovation and product development, and potentially also regional development	Regional governance (Macleod and Goodwin 1999; John 2001; Morgan 2013), Public procurement (Edler and Georghiou 2007; Edquist and Zabala-Iturriagagoitia 2012)
Norm- and value-setter	Changing consumer norms, values and habits lead to emergence of new markets; interest groups act as valuators and mediators between producers and consumers	Economic valuation (Jeannerat and Kebir, 2016; MacNeill and Jeannerat, 2016)

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 size 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 analyzed or 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 market sizes. Since pure local markets hardly exist in today's globalized economy, such demand is most likely to take place on a national and/or global scale.

Established consumer bases and clearly divided markets reinforce the continuation of existing industry structures, thus leading to the *extension* of regional industrial growth paths. Anonymous demand is thus important to securing and preserving markets sizes for products made (and processes applied) by the industry. At the same time, a systematic decrease in demand for certain products is will lead to shrinking market sizes, slowly but steadily causing an *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. It has been possible to

observe these path development processes recently in the automotive industry. The market share of diesel driven cars has been constantly shrinking (Bernhard, 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 development for electric cars. Their market size is steadily growing, suggesting 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), which leads 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 occur solely as a reaction to changes in aggregated demand, but they are rather based on direct interaction between consumers and producers, allowing the industry to 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 machine for milk packaging was altered to aseptic frozen products packaging, in order to meet the sophisticated demands of a consumer (in this case, a Chinese dairy producer) (Sikes, 2017). This new type of packaging allows an opportunity to tap into the ice cream market for both Tetra Pak and dairy producers, who had previously little chance of developing products which required freezing technologies.

The concept of the sophisticated buyer has emerged in the literature on clusters (Porter, 1998), suggesting that co-location between users and producers positively affects the competitiveness and innovation performance of firms. However, since the majority of markets is global in character, sophisticated buyers can be located at other geographical scales (as in the case of Tetra Pak), as well.

The role of consumers as *active co-developers* is strongly connected to the provision of knowledge in the innovation processes as well as to the search for solutions to practical problems. As opposed to sophisticated buyers, active co-developers not only specify the needs of future markets, but this group is also actively involved in developing new solutions. Active co-development can take different forms and thus contributes 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 of

[2] It is important to point out that anonymous demand is by no means the only trigger for change in the car industry. It is an outcome of co-evolution between advancements in technology, behavioral change, policy and institutional development (see e.g. Geels, 2012). However, as Wesseling et al, 2014 noted, the possibility to estimate (high) sales of electric vehicles was an important trigger for many companies to enter this market segment.

doing this 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). In this way, they can contribute to *the creation of new regional industrial paths*. 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 continual presence on the market, and, as a result, to a *path extension* in affected regions. Finally, users can also act as bridges for inter-organizational and -industry learning. Consumers are increasingly becoming "prosumers" (i.e. professional users) – developing own solutions to cater to their needs when the market lacks a proper alternative (Grabher and Ibert, 2018; also von Hippel, 1986). Those solutions can later be commercialized and diffused by users, themselves, and/or other firms in the industry facilitating the *path renewal* of existing industry structures, largely driven by an increase in the development of products and services.

The value of consumers as active co-developers is connected to knowledge sharing. It is widely accepted that proximity facilitates knowledge exchange due to a decrease in transactions costs, joint norms, and an increase in 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, the co-location 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 lead to both a new path creation and a path extension – depending on the novelty of products (or services) procured. It is important to differentiate 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 of both) and provide exact specifications (e.g. build a sound isolating wall), which limits the opportunity for innovation. Thus, public authorities will strengthen existing markets through increasing markets shares, leading to *path extension*. Public procurement for innovation, on the other hand, 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. a reduction of 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, a public (innovation) procurer can provide considerable momentum to the construction of 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 show a

preference for local bidders over those from other places. Thus, the identification of demand in one administrative region might trigger new path creation or facilitate path extension in another area.

The consumer as *norms and values setter* can be understood in both a narrow and a broad sense. In the 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 to the normative views of their established consumers. Industries are able to gain an understanding of these norms and values via what Grabher and Ibert (2018) refer 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 provided by a new type of industry. An example of this, taken from the food sector, is the emerging industry around insect-based proteins, which is driven by a growing valuation of environmental aspects among certain consumer groups (Dossey et al., 2016).

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 which 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, the formation of NGOs, interest communities and others. For example, during the dawn of electric cars, the market shares could hardly be estimated or analyzed, and a new market had to be created. One of the reasons why new and established car manufacturers began to develop electric cars was a change in societal norms and values, at large – an increase in concern with global warming and involvement in climate related matters (Geels, 2012). Similarly, consumers' increasing concerns about the environment have also opened up opportunities for new services surrounding the sharing economy, e.g. car sharing, where the population, particularly of urban areas, has begun to cultivate new lifestyles that demand new concepts toward mobility.

Similar processes can be observed in the food industry. The growing trend towards vegetarian and vegan food is triggered by changing norms and values among consumers, often in urban regions. Another example is protein sources made from insects (Dossey et al., 2016). In Europe, market shares for such novel food products are difficult to estimate, since the sales of insects as food is legally prohibited in many European countries. However, some changes have already begun. Recently established companies are focusing on product development and promoting

the idea of insects as food, while waiting for food laws to change. Few established companies, such as high-end restaurants, have started to introduce insect-based meals as temporary options on their menus (for example, Grand Hotel Lund in Sweden). These are examples of path renewal efforts made by mature industries in order to change the societal debate. These types of activities are largely driven by societal goals which are perceived to be important to consumers, suggesting that consumers as norm and value setters play a role in the process of new path creation.

Norms and values are space and time contingent and can differ depending on regional contexts, in particular between urban and rural areas as mentioned in the example above, as well as among different periods of time (see also Zukauskaite et al., 2017). This suggests that the societal debates which take place within a certain geographical area, as well as the norms and values within certain consumer-communities may differ, creating the chance for different forms of paths development to exist simultaneously (e.g. an increase in the consumption of meat, on the one hand, and an increase in the demand for vegetarian and vegan food, on the other hand). Furthermore, since norms and values change over time, industrial paths can be imported from other regions, once consumers start accepting and legitimizing certain types of activities that were not previously acceptable.

Table 2: Role of demand in new regional industrial path development

Role	Description	Relation to Regional Industrial Path Development
Anonymous consumer	General market trends and global demand conditions influence local production systems	• *Path extension* – securing market share important for preserving established paths; • *Path exhaustion* - loss of market share might lead to path exhaustion; • *Path renewal* – via inter-industry learning due to growing market shares; • For entirely new paths, markets cannot be analyzed, but need to be secured for a new path to sustain
Sophisticated buyer	Co-location with sophisticated buyers offers producers advanced knowledge of the market	• *Path renewal* - further adaptation of the products/services in established paths due to new and sophisticated needs of the consumer

Role	Description	Relation to Regional Industrial Path Development
Active co-developer	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)	• *New path creation* – contributing by verifying entirely new products to the market; • *Path renewal* – further adaptation of the products/services in an established path with consumers directly involved, not least via prosumer activity; • *Path extension* – contributing to sustaining established products via incremental improvements
Public procurer	Public procurement as policy tool to steer innovation and product development, and potentially also regional development	• *New path creation* – if used as innovation procurement; • *Path extension* – if used as product procurement with detail specification
Norm- and value-setter	Changing consumer norms, values and habits lead to emergence of new markets; interest groups act as valuators and mediators between producers and consumers	• *Path extension* – catering to established norms and habits in order to preserve market share; • *New path creation* and *path renewal* – change in norms and values (often related to generational 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.

Source: Own draft

4. Conclusions

In this paper, we have called for a stronger consideration of the role of demand in the academic debate on new regional industrial path development. In reviewing the regional development literature, we have 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 allow for new types of products or services), by public

procurement for innovation, or by consumers who help to verify, test and further develop products and services, or even develop their own novel solutions. In order for new firms, technologies or products to turn into new growth paths – i.e. in order for them to gain a critical mass that has a significant impact on the regional economy – market sizes must be established and secured. Path renewal can be triggered by growing market sizes 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 a change in societal norms and values and among consumer groups. Path extension is supported by public procurement as well as by the established norms and values of mainstream consumers. Active co-developers might contribute to sustaining established paths by providing incremental changes while market sizes (indicating the presence of anonymous consumers) are a must for any regional industrial growth path to persist.

Previous studies have indicated 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 on different spatial scales (Grillitsch et al., 2017; Trippl 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. The demand for products and services developed in one region can be found in various locations. It transcends both physical and virtual spaces, can be temporary or stable over time, confined to a narrow consumer group or to the general public. This does not mean that the location of demand is irrelevant, it is rather the opposite. An improved means of communication allows us to more quickly capture the changes in demand and the interaction with users, which leads to a more nuanced understanding of demand, overall. Consumer norms and values, needs 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 underlying factors which contribute to 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 to new path development, they might be triggered by changing demand conditions such as growing market segments or the needs and requirements expressed by consumers. A better understanding of the demand side of innovation could open up new avenues for research on regional development.

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