

Firm-driven path creation in arctic peripheries

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Abstract

In this paper, the author argues that path creation in regions could be connected to extra-regional firms, networks, and knowledge. However, since the 1990s, the field of evolutionary economic geography has emphasized the importance of endogenous factors in explaining mechanisms of growth and decline. In the debate on path development there has been strong trust in internal regional processes, where regional innovation systems, related variety and regional branching have been important sources of new growth patterns. Consequently, the anchoring of multinational corporations (MNCs) in regions as new sources of regional growth and firms' strategic behavior has received less attention in the evolutionary economic geography discourse. There is less understanding of path creation as "outside-in" transplantation, and of the role of extra-regional sources of knowledge and new path development. Accordingly, as peripheral regions often lack notions of relatedness within economic sectors, they depend on exogenous sources of new path development. By applying a set of quantitative and qualitative data from the build-up of a new offshore cluster in the petroleum sector off the coast of Finnmark in Northern Norway, the author suggests that firm behavior within a multiscale network of actors plays a dominant strategic role in the development of new paths in the periphery. He argues that exogenous development impulses in the form of a combination of MNCs, state policies of local content, and the inflow of new knowledge through the inward transplantation of firms from outside can initiate new industrial paths. Thus, the author raises fundamental questions about the applicability of models of endogenous path creation in peripheral regions, and suggests a new analytical framework for understanding how the entry of strategic firms connects with different regional paths.

Keywords:

path creation, peripheral regions, oil industry, exogenous path development, firm behavior

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1. Introduction

Linkages between multinational corporations (MNCs) and local firms are key mechanisms through which knowledge, ideas, and technology are transferred (Hansen et al. 2009). It has been argued that linkages constitute a “black box” in discussions about when and how foreign direct investments (FDIs) induce economic development (Scott-Kennel & Enderwick 2005). Without linkages to regional industries, the effect of FDI will be enclaves in the local economy that will exploit resource and labor pools and will hinder local economic development processes. We know much about different notions of path-dependent regional industrial development (Martin and Sunley 2006; Martin 2010; Neffke et al. 2011; Isaksen and Trippl 2016; Kogler 2015, Binz et al. 2016). The latter concept relates to the fact that pre-existing industrial and institutional structures constitute the regional environment in which current activities occur and new ones are introduced. Regional industrial development is based on endogenous factors, as past economic development “sets the possibilities,” while the present controls what possibilities can be explored (Martin and Sunley, 2006). New industries in a region grow out of existing and related ones through branching processes (Boschma and Frenken 2011). In recent years, we have learned much about the supply side of regional development, while the demand side has been less developed within economic geography. By contrast, there have been few qualitative assessments of how MNCs encounter regions and how their encounters stimulate and connect with regional path development (MacKinnon et al. 2009; Mackinnon 2012, Simmie 2012; Dawley, 2014; Isaksen and Trippl, 2016). Similarly, our knowledge of firms’ strategic behavior and the anchoring of extra-regional sources within evolutionary economic geography (EEG) has been less developed. This debate is of importance for the broad field of regional studies, due to the immense challenge that faces regions today regarding how to sustain long-term industrial development and at the same time renew regional economies in response to increasing demands from the knowledge economy.

In this paper, I argue that new economic regional paths and what is called path creation in the economic geography literature, is more than a regional and territorialized process as it is connected to extra-regional actors and networks. Evolutionary economic geography understandings of how new industries can emerge and grow is commonly founded on notions in which regional path development is based on endogenous forces inside core areas and in urban economies (MacKinnon, 2012; Isaksen and Trippl, 2016; Binz et al. 2016). The literature in this field elaborates on assets for path development, where “thick” regional innovation systems (RISs) seem to be the most salient

characteristic, often derived from data from core-regions and metropolitan areas. Peripheral regions are frequently represented as specialized in traditionally primary and minor economic activities, which have either low levels of R&D or no R&D, and lack knowledge variety and innovation. Consequently, lagging regions tend to have thin structures of knowledge and support institutions (Tödtling and Trippl, 2005). Accordingly, key assets for the development of endogenous new regional paths are lacking in non-core areas (Isaksen and Trippl, 2016). With few exceptions, the literature provides few examples where peripheral regions have had the possibilities to open new routes inspired by new industries. Case studies of rural manufacturing (Virkalla 2007), electro industry (Jakobsen et al. 2005), and ICT and software industries (Isaksen and Trippl, 2016) have documented how new trajectories have been opened by the introduction of new industries. The work on foreign direct investments (FDI) and regional renewal from Fløysand (et al. 2016) demonstrate that foreign investments creates new paths in regions, but that the evolvement of these paths depends on the industry-region coupling and the support from institutional structures at the national level. While the literature on FDI has proved important insights into the field of MNCs and “outside-in” transplantation, the current model of path-dependent regional industrial development need to be explored further in providing a theoretical framework for approaching new paths in rural and non-core areas.

The aim of this paper is to develop our conceptual and empirical knowledge of firms’ strategic behavior and actions in the emergence of new industries in peripheral regions. In this context, I approach the firm as an “anchor,” where large firms within the emergence of a petroleum cluster in Northern Norway provide stability and mediate knowledge, networks, and ideas for smaller regional firms. In seeking to explore and assess the firm–region nexus, I address the following research question: *How do the strategies of entering MNCs influence the emergence of new industrial development paths in peripheral regions in the Arctic?* I apply a set of first-hand quantitative and qualitative data from two oil companies entering the petroleum sector in the northernmost region in Norway to address questions of how MNCs approach new places and to what degree questions of their strategies are anchored in the region to stimulate new development paths.

The remainder of the paper is structured as follows. Section 2 contains a review of the growing literature on evolutionary economic geography and the concept of path creation. Section 3 presents the study’s methodology. Section 4 sets out the results, and in Section 5 the findings are discussed in the light of the theoretical literature, where I develop an analytical model to enhance the understanding of entering MNCs and strategies in regions through exogenous inflows of new knowledge, technology, networks, and ideas. Finally, in Section 6, I discuss the added value of these findings in enhancing our understanding of emerging new paths in regional development.

2. New regional path creation and anchoring

2.1 Path development and evolutionary economic geography

The concept of path development within evolutionary economic geography is a concept with different dimensions which all implies different development routes in a region: Path dependence, path extension, path renewal and finally, path creation. The following section will elaborate briefly on the different dimensions. Economic geographers have increasingly considered the significance of history in shaping the contemporary socio-economic landscape. The development of the “evolutionary turn” in economic geography (Grabher 2009) is based on the idea that the experiences and competencies acquired over time by individuals and entities in localities to a large degree determine existing configurations as well as future regional trajectories (Kogler 2015). Consequently, the notion of path-dependent regional industrial development has received great attention. Path-dependent regional development focuses on the negative and positive lock-in effects that pushes a technology, an industry, or a regional economy along one path rather than another (Narula 2002).

Path dependence means that regional firms and industries may enter path extension through mainly incremental innovations in existing industries and technologies. Applied to a growing regional economy, this implies that local and regional firms increase their market position, create more jobs, and contribute to development through continuity of the existing situation in the region. In such situations, regional industries may eventually experience stagnation and gradual decline due to lack of renewal (Hassink 2010). Firms in the region might face a risk of path exhaustion, which refers to a condition wherein the innovation potential of local and regional firms is reduced or wherein innovations take place only along a restricted technology path. Without renewal in regional industries, the lock-in effect in such situations will result in exhaustion for the region.

The evolutionary approach in economic geography has added elements that supplement notions of path-dependent processes that may follow from different forms of reorientation of regional industries (Mackinnon et al. 2009; Martin and Sunley 2011). One of these novel contributions is path renewal that occurs when existing local firms switch to different, but possibly related, activities and sectors. Typically, path renewal is achieved when regional industries mutate into new or related areas of activities (Boschma and Frenken 2011). While path renewal is a change for a region within a new direction, path creation denotes the most wide-ranging change in a regional economy. It includes the establishment of new firms in new sectors for the region, or firms that have different

variants of products, employ new techniques or organize differently (Martin and Sunley 2006). Path creation is often research-driven and focuses on the commercialization of research results. It is often policy-initiated and demands proactive policy actions (Asheim et al. 2013). The following section will elaborate the concept of path creation additionally.

2.2 Key mechanisms of path creation and anchoring of extra-regional resources

The first key mechanism of new path creation can derive from *indigenous* factors such as vibrant entrepreneurs, human capital, and research institutions (Garud and Karnøe 2001; Martin and Sunley 2006; Martin 2010; Simmie 2012). As they have the potential to introduce new ideas and mechanisms that reorganize the prior regional industrial sector, they are key mechanisms in facilitating path creation. The second key mechanism of new path creation is the literature's demonstration of how *diversification* of related industries and regional branching can create new paths through relatedness between sectors (Boschma and Frenken 2011; Neffke et al. 2011; Essletzbichler 2015). The point here is that industries emerge from related industries and that the industrial structures in a region enable or constrain regional diversification and regional branching. Finally, the third mechanism of new path creation is when new ideas, actors, and networks are *induced externally or imported* from outside the region. New paths are transplanted into the region when either new firms or policies are introduced or both. It has been argued that the focus on endogenous capacities within regions has led to a limitation in understandings of extra-regional sources of new path development within evolutionary economic geography (Nilsen, 2016; Isaksen and Trippel, 2016). As argued by Binz et al. (2016), the development of new industrial paths with new path creation from outside the region represents a wider geographical approach from the territorially bound and localized approach to new path creation.

The results of recently conducted studies underline the significance of transnational entrepreneurship in early industry formation (Saxenian 2007; Drori et al. 2009). Externally induced ideas, networks, and firms are often accompanied by or supported by policy interventions as exogenous drivers of path creation. Market entry of foreign manufacturing firms or engineering firms within, for example, the oil and gas industry, will produce new market opportunities and might well lead to an increased flow of knowledge within a region. The question of absorptive capacity becomes essential, as the main interest of regional actors is to anchor extra-regional flows in the region and transform them into localized economic development processes. The location of firms or companies of a new industry in a region not only depends on the region's initial generic resources, but also increasingly on the regional actors' capacity to mobilize external resources and anchor them in the region (Binz et al. 2016; Martin and Sunley 2006; Vale and Carvalho 2013). Consequently, the

concept of anchoring is not simply about transporting external knowledge into the region, but about *“re-contextualizing and diffusing it in place, supported by capable entrepreneurs, universities, new organizations, policy action and flexible institutional settings”* (Vale and Carvalho 2013:1022). From such a perspective, knowledge and networks do not necessarily emerge only in agglomerated settings, as there are situations where other types of systems nurture these capacities and they are transplanted to peripheral regions (Martin and Sunley 2006). As Binz et al. (2014) argue, knowledge and networks can also be developed within transnational companies and as such be transported from one location or organization to a different location.

Feldman (2003) argues that anchoring is not a one-dimensional process of attracting extra-regional anchor tenants that bring local knowledge spillovers. Instead, anchoring should be approached as an interactive process in which regional actors mobilize knowledge, markets, and financial investments that emerge from formation processes in different regions. She argues that, over time, extra-regional resources will somehow become connected to the networks and actors within these regions, and subsequently agglomeration economies and self-reinforcing processes will develop, leading to self-sustaining regional industrial pathways. De Propris and Crevoisier (2011, 172) have discussed whether the performance of resource formation and anchoring processes, including their mutual alignment at different places and times, can indicate how key resources for industry formation are transported to or evolved in a region. In a situation where these formation processes are aligned within a region, the more resources are mobilized for local actors, the stronger the anchoring of extra-regional resources will be (Binz et al. 2016). Conditions for the region to create territorially path-dependent industrial development will be increased by the degree of anchoring and aligning within that region. Further, it has been suggested that in a context where regional growth is pursued through the anchoring of a new industry, this involves transforming mobile factors such as labor force into immobile factors, to sustain a local development process of firm agglomeration and accumulation of new knowledge (Binz et al. 2016). As argued by Asheim and Isaksen (2002), anchoring means coupling a region to extra-regional resources and transforming these into locally “sticky” resources, mainly by introducing activities that can be described by the four resource formation processes: knowledge creation, market formation, investment mobilization, and technology legitimation.

2.3 Towards a model of exogenous development and path creation

Dawley (2014) has argued that the analysis of new path development in peripheral regions, should consider the role of policy actors and interventions on multiple scales. Combining insights from Mackinnon (2012) and Dawley (2014) with the emerging literature on MNC programs on local

content (Tordo et al. 2013; Ovadia 2014) may prove to be of some analytical value. A few countries and regions are developing oil and gas reserves. Their policymakers are eager to obtain the greatest benefits for their economies from the extraction of the resources. The policies of local content are understood as the extent to which the output of the extractive industry generates further benefits to the economy beyond the direct contribution of its added value (Tordo et al. 2013; Ovadia, 2014). The respective petroleum sector purchases inputs such as labor and outputs from other sectors, which are supplied from their “home” country. As stated by Ovadia (2014: 138), local content encourages the employment of locals by multinational companies (MNCs), but also recognizes that resource extraction, specifically oil and gas, is an enclave industry that will never be a significant employer without linkages to the service sector and beyond. Thus, local content policies (LCPs) exert pressure on MNCs involved in extractive industries to use local companies for the supply of services and goods. Thus, oil companies often invest in facilities for local manufacturing and service provision.

Oil and gas are essentially territorial resources and their transportation out of an area involves demanding operations with technological and financial risks. The bounded territoriality of petroleum resources provide countries with strategic power to claim LCPs. I argue that key actors both in the petroleum economy states and in the MNCs can gain comprehensive advantages in developing local content as a long-term strategy. Long-term benefits include lower transportation costs, lower costs associated with expatriate staffing, smoother flowing supplies of goods and services, greater skills and experience among workers and managers, a strengthened relationship with the host level of government, and thus, a strengthened license to operate. In this respect, I argue that the potential for connection between MNCs and regions is in the procurement procedures that serve as the main attractor for regional industries in emerging regions. How these procurement processes are designed will influence the degree to which regional industries will either engage in competition or be excluded from it. In addition to procurement, other strategies will influence the degree of coupling between MNCs and places, such as staffing with new personnel, the establishment of new branch offices in the region, and investments in research and development (R&D) in regions. The degree of involvement of regional industries in MNC strategies will vary and the relationships will be complex, with a lot of risk and uncertainty.

Mackinnon (2012: 240) suggests an analytical framework for research on couplings processes between regions and global production networks (GPNs), and identifies 8 key dimensions: the mode of entry of lead firms in GPNs; the status of MNCs’ affiliates within the parent company; regional assets; whether couplings are organic, strategic, or structural; the degree of coupling; historical layering of the couplings; whether power relations are symmetric or asymmetric; and the region’s exposure to disinvestment and decoupling. While focusing on these couplings as networks, this

analytical framework is well suited for analyzing how networks of firms are integrated into a region through the concept of strategic coupling. Inspired by MacKinnon's (2012) model and by concentrating on a single-actor approach, I propose an analytical framework for research on the encounter between regions and MNCs in the periphery. By relying on a single-firm approach and defining MNCs as a driving force in non-core regions, we implicitly acknowledge that MNCs are often the main driver in such processes, and initiate processes that push the development in one or other direction. Such an approach does not exclude a broader approach in mapping and analyzing the most important main contractors or suppliers.

I suggest *produce and leave*, *stepwise adaption*, and *integrate*, as three modes of MNC strategies in emerging regions, and the three scenarios and their output are broadly elaborated in Table 1. The most important reflection is that the model represents the scope of the strategies that companies can undertake in regions. While the left-hand side of the model (*produce and leave*) represents the traditional way of thinking about resource extraction in peripheral regions, it represents few connections between entering industries and the economic conditions of the host region. It relies on the association between regional investment by large corporations and stagnation, although the limitations of this argument have become increasingly apparent, as regions have developed because of MNCs (Bathelt et al. 2002). Still, if the extent of integration is kept to a very modest level, the output can be characterized as an enclave-economy that exists isolated from the society or economy in the region. The right-hand side of the model (*integrate*) represents a more integrated perspective between the entering companies and the existing regional economy. Strategic couplings will be conducted, and local job-creation, added value, competence development, and growth will result from MNCs' integrative strategies. A large degree of autonomy in subsidiary MNCs and their affiliates will increase the strategic positioning of the MNCs in the region and enable maneuvers that might lead to long-term effects. Investment in research and education has the same point of departure. Strategies linking regional actors and MNCs are at the center of this mode.

Table 1 in here. Modes of MNCs strategies in peripheral regions

Approaches and frameworks that take into consideration exogenous sources of new industrial development as well as proactive actions by key agents, including policy actors, across multiple scales may highlight how regions overcome barriers that hamper regional economic development in the periphery. I have added to my framework the role of MNCs as drivers in early phases of entering the exogenous development of new path creation in emerging regions. In the next section, I examine

how data were collected to answer the research question in this paper, and the following sections explore whether my argument is valid in an empirical investigation of the MNCs' strategies in a peripheral region in Northern Norway.

3. Data and methods

The empirical foundation of this paper rests partly on two research programs (conducted between 2003-2008 / 2009-2016) on the mapping of socio-economic regional ripple effects of the gas field Snøhvit (English name: Snow White) and the oil field Goliat, both of which are in the Barents Sea.¹ We relied on three levels of data in this project and the same three levels of data are used as the basis for this paper. First, we relied on information from Statoil and Eni Norge's subcontracting databases. The Statoil data included 4899 contracts awarded by Statoil for developing the Snøhvit field, which was the total number of contracts included in the development of the field from 2002 until 2008. In total, 60 Norwegian suppliers to Snøhvit were registered in Northern Norway, and representatives of all of them were interviewed. The Goliat data included information on 12 major contracts from in-depth interviews in cases when these interviews were followed up by interviews with representatives of 12 companies that served as subcontractors to the main contractor or to other subcontractors. Second, as part of the two intensive research programs, we had access to key representatives of local content arrangements inside the two MNCs—Statoil and Eni Norway—and we conducted 15 interviews with representatives of oil companies: 7 with Statoil and 8 with Eni Norway. These data were collected in the periods 2006–2008 (Statoil) and 2013–2015 (Eni Norway). Intensive and extensive data were collected from first-hand company data on supplier distribution of all supplies to Snøhvit and Goliat. Third, and finally, document studies of public policy notes and White Papers regarding the empirical context were an important supplement to the interviews. The data from the interviews were sorted, interpreted, and analyzed with respect to the research question stated in the Introduction in this paper.

4. New regional path creation in the periphery—development of a supplier cluster in offshore oil and gas

In this section, I highlight and elaborate on the role of MNCs in the emergence of a new path development in the peripheral region of Finnmark in Northern Norway. The following discussion is

¹ The research programs were (1) "Socio-economic ripple effects of development of Snøhvit 2003–2008," financed jointly by the municipality of Hammerfest in Finnmark County and Statoil, and (2) "Socio-economic ripple effects of development of Goliat development and Eni Norge's presence in Finnmark," financed by Eni Norge. Both programmes were conducted by researchers at the Northern Research Institute (Norut).

mainly built on studies that I have conducted since 2002 on the development in the region prior to and during the time that MNCs entered the region in 2001.

Figure 1 in here, Timeline of central developments of oil and gas policy in the Barents Sea

4.1 Multiscalar negotiations between regional entrepreneurs, MNCs, and policies

In the beginning of the Norwegian oil era in the 1970s, Norway attempted to transfer technology from mainly US firms to Norwegian firms to build a national competitive supply chains around oil exploration and extraction. This strategy was successful. In addition, the Norwegian Government capture the value uplift from Norwegian and foreign oil companies through a tax-regime, including 78 percent tax to the Norwegian Government of the income value from the extraction. While the oil and gas activity in the southern part of Norway increased during 1970s and reached its first peak in the early 1980s, the petroleum activity in Northern Norway started in the early 1980s. During this period, the region of West Finnmark was heavily dependent on fisheries and production related to fish processing. The conflict between oil and gas and the fisheries contributed to a long period of low drilling activity in the Barents Sea.

In 1984, the first gas field was located in the Barents Sea, and in the following years a number of further discoveries were made, but these were too small to be commercially sustainable. During the 1990s, the political situation developed in a direction that partly placed the petroleum activity in this area of the Barents Sea on hold. Shifting political constellations argued that environmental reasons and negative effects for the fisheries, should exclude petroleum companies in the region. The Norwegian Government only allowed drilling during a few summer months each year. A shift in policy towards a more positive attitude to oil and gas in the North followed when environmental studies indicated that shared use of the Barents Sea would not necessarily lead to negative consequences for the fisheries, and that petroleum activity in the North Sea had run for 30 years without any significant spillages of oil or gas. Parallel to this, the need for new industrial development in the area had grown because of the declining activity in the fisheries. The need for industrial renewal triggered regional and extra-regional interest to influence policy in this regard.

During the 1990s and early 2000s, a more positive turn towards petroleum activity arose due to need for new activity in the region and the potential for developing the major gas field off the coast of Finnmark was recognized. MNCs argued that providing infrastructure in this area was costly and that developing the whole region as a new petroleum province would require subsidies. After a period of

negotiations between the oil companies and the national government, the government decided to provide subsidies to develop the first petroleum project in 2001. The aim was connected to national interests through a contribution to the build-up of an innovative technology in liquefied natural gas (LNG) and securing Norwegian companies' access to this new technology. The relationship with Russian partners also mattered because the exploitation of world's biggest gas field, Shtokman, located off the coast of Murmansk, was planned to be done using similar technology to LNG at Snøwhit. This prompted the Norwegian Government to facilitate such an economically beneficial solution for Statoil and its foreign partners.

4.2 Innovative technologies and first-mover Statoil

In 2001, Statoil decided to develop the first LNG site in Europe, in Finnmark. The establishment of a full-scale LNG plant on Melkøya, an island close the town of Hammerfest, with the capacity to process and offload the gas from ships and transport it to the market, had huge innovative impact. The technological demands and the arctic climate was a daunting challenge to the implementation of innovative technology in a Barents Sea port. The total investment reached EUR 8 billion, the field development phase involved 2,000 firms and included the gas facility outside Hammerfest, and pipelines from the field in the Barents Sea. Statoil became the first mover in a region with a harsh climate, a lack of infrastructure, and few available resources. After some technical difficulties, the construction site was ready one year later than scheduled, but in 2007 the site was prepared to go on stream. The operational office housed 460 new employees from the community. From employing three persons in Hammerfest from 2001–2006, Statoil was suddenly a major employer in the region of Finnmark. However, a series of challenges related to the arctic climate and the need for adjustments to the LNG technology delayed the start-up of the plant. During 2008, production was stabilized and as of 2016 Snøwhit is among the plants with the highest returns in Statoil's portfolio, and has been described as a "cash-machine" (interview data).

In the construction phase, Statoil's plant mobilized local and regional firms. Analyses of data from Statoil's subcontractor database revealed that the total value of goods and services delivered to the Snøwhit development project by the 60 companies registered in Northern Norway totaled USD 480 million from 2003-2008, which amounted to 6% of the total deliveries and 9% of the national deliveries (Eikeland 2014). Of this amount, companies in Hammerfest (the host community) and in neighboring communities of Alta and Kvalsund accounted for the largest share (USD 300 million). Much of supply companies can be divided into three groups. First, there were local businesses with a weak connection to the petroleum industry, but their geographical *proximity* to the development site brought them into the Snøwhit project through comprehensive excavation works and the transportation of large quantities of stone chips, gravel, sand, and concrete. Buildings were being

erected and there were requirements for power supplies, transportation of staff, provisioning, cleaning services, security, waste management, and vehicle repairs. Second, local *recruitment agencies and equipment hire firms* were operational. The high demand for skilled workers led to several recruitment agencies in the region concentrating on the hiring of labor to the major suppliers, and in this regard they took advantage of an important bottleneck during the development. Finally, a third group of regional firms that had few contracts *benefited from the public development* and the other types of expansion resulting from the Snøwhit project, including comprehensive building activity with upgrading of schools, the construction of a new cultural center, and a total upgrade of the roads, which the host municipality put into operation. Statoil built a series of houses, and new business premises shot up too. For several of the local companies, this became a more important market than the development at Melkøya, in which they made a decision not to become too heavily involved.

Although the local and regional firms had their market positions in traditional areas such as transportation and construction, they were not important parts in the global petroleum industry mosaic. Given that they were 2000 km distant from the main clusters of the sector in Norway, some of the local entrepreneurs started to develop proposals for the benefit of local input. They argued that the need for local input was mainly related to the MNCs' benefits in the long-term in terms of reducing costs, having local staff close to the operational field, and simultaneously facilitating a smoother flow of supplies of products and services. As the Barents Sea emerged as an important energy supplier to European and Asian markets (confirmed in an analysis of petroleum reserves, in the "Norwegian Government's High North strategy" (2008), the argument for local input became more relevant to the MNCs' shareholders. Subsequently, the focus on procurement strategies in the MNCs increased and the need for building local input was closely connected to this increase. In the meantime, an Italian oil company, Eni S&P, had made an oil discovery in the same area as Snøwhit and this increased the momentum for local input programs within the MNCs.

In 2007, Eni Norge, an MNC owned by the Italian mother company Eni S&P and the Italian State, discovered the Goliat oil field, which contained enough oil for production for 15–20 years. Eni Norge decided to build up its operation in Hammerfest, an organization that would lead to 180 new employees in the town. In the following years, the Barents Sea turned into a "hot-spot" with a number of interesting oil discoveries made by international oil companies, such as the Austrian company OMV and the Swedish-owned company Lundin, in addition to Statoil's own major oil field, Johan Castberg, outside Nordkapp, 150 km east of Hammerfest. From zero oil and gas activity in 2001, the region had turned into a very promising global region of new oil and gas. In the next

section, I explore the initiatives of two MNCs that established offices and appointed operational staff in Hammerfest in order to build local input in the region.

4.3 MNC-driven path transplantation

Through its activities in exploration, field development, and operations in the Barents Sea, Statoil has advanced local input through several initiatives in Finnmark. The company invests in human capital and supports science as a taught subject in the region's high schools. It encourages and informs students of the possibilities of applying competence in science in the oil and gas sector. In addition, the company offers resources such as teaching and other staff from the LNG fabric on Melkøya to stimulate students to continue to study science in the field to the level required to fill a position on the LNG plant in the future. In addition, the company has provided technological and financial support for the construction of a partial model of the plant at Hammerfest high school to increase students' understanding of the production process. These initiatives have resulted in an all-time high number of students applying for technological education in the region's high schools.

Beyond educational initiatives, several initiatives have been taken by the MNC to build a competitive local and regional supply chain. First, there have been investments in supplier development through the program "Leverandørutvikling Nord Norge" (LUNN), a supplier development program (SDP) in Northern Norway. The program upgrades skills in quality, health, and security requirements. It has been rolled out in different phases and includes technological skills and marine operations. Additionally, LUNN has acted as an arena for collaboration between regional firms during tendering. The program is still running (in 2016) and is financed by oil companies and the northernmost regional municipalities. Second, financial assistance has been made available to various organizations supporting supplier development. The most prominent of these, Petro Arctic, has 460 firms as members and acts as a cooperative arena between firms seeking to increase their market position, as an information channel, and as a political institution trying to influence the politics of oil exploration in the High North (Nilsen, 2008). Interview data from 2015 confirms upgrading within firms as a consequence of the membership of and activities driven by Petro Arctic. Third, but not least, Statoil adapted its operational long-term contracts from 2009 to secure local input. As an example, it required new contractors to be local in the operational phase during the tender process in 2009. Local presence was important to ease the maintenance and modification work planned for the onshore site. This led to the rapid build-up of a few dominant and global oil service firms within the local community, which hired local and regional staff.

When the Italian oil company Eni Norge entered Hammerfest in 2009, the company made it official policy to develop local input in Finnmark. To increase the amount of local input, Eni Norge required

the presence of local companies operating with seven or eight main contracts. In accordance with the Norwegian Government's policy requirement, the MNC had to meet several specific requirements in their operations (Nilsen 2016). The requirements involved hiring local people, investing in local offices, and building up capacity and infrastructure to serve the oil companies' future needs. The other oil company located in Hammerfest, Statoil, went further than the legal requirements in the most employment-intensive main contracts in the operational phase, by requiring 70% of overall engineering and administrative capacity to be conducted in geographical proximity to the facility operation office (Nilsen and Karlstad 2016). In practice, this meant developing capacity within the area of Hammerfest. Interview data from firms in Finnmark indicate that the requirement of a local presence in the region was the most important factor in localization, while access to new assignments was the second most important and contact with new suppliers to increase market position the third most important. The strategies implemented by Eni Norway have facilitated the establishment of new jobs in firms in Hammerfest due to the operation of Goliat, including jobs in global firms such as TESS, ABB, Aibel, Bilfinger Industries, Haliburton, and Kuhne-Nagel. Employment within the sector increased from zero in 2001 to approximately 700 in 2016.

Further, Eni Norge has implemented efforts to build local input because of their Goliat development in the Barents Sea. Goliat is Eni Norge's first ever oil project as an operator and is the first oil field in Finnmark. In cooperation with Statoil, Eni Norge has promoted support and resources in the educational sector, both at secondary level and in research in the High North. Eni Norge has conducted multiple research projects at the University of Tromsø – The Arctic University of Norway in areas such as technical improvements in harsh operations, the societal challenges of oil investments in the Arctic, oil spill studies to build sustainable emergency systems, and investment in a regional study of the ripple effects of Goliat. Further, Eni Norge and Statoil cooperate on using apprentices to develop local knowledge on central issues for oil and gas production. In total, Eni Norge contributed NOK 75 million (USD 9,37 MILL) to technological and societal research within the two most peripheral regions in Norway.

Eni Norge adjusted its operational contracts in the light of a study conducted by Petro Arctic. The study identified how regional firms could compete more effectively in the tendering processes if procurement strategies were realigned from big and demanding contracts including a vast administrative capacity, to smaller and less demanding contracts in the areas of contracted firms' expertise. Splitting contracts is seen as a central factor in building local input due to an expected increase in the level of subcontractor involvement from the region close to the sites. In addition, like Statoil, Eni Norge contributes to local employment growth by using local contractors.

Lastly, Eni Norge also invests in building capacity outside the main Goliat impact area. Due to the relatively strict requirements from The Norwegian Government and Parliament, Eni Norge has supported infrastructure in building ports for emergency equipment outside the centre of Hammerfest, and contributed to rather big investments in the more peripheral Goliat impact areas such as Hasvik Municipality and Loppa Municipality. Beyond hard infrastructure, the company has invested in digital infrastructure as well as facilitating distance learning in Hasvik Municipality, in the digital classrooms project “Digitale klasserom” (Nilsen and Karlstad 2016). In total, Eni Norway has contributed EUR 106 million to create regional suppliers in the development phase of Goliat. Approximately 450 people were employed full time in the field development of the offshore construction phase in Northern Norway (Nilsen and Karlstad 2016), before the start of the operational phases, in which contracts have been realigned to secure the competitiveness of local firms.

5. Discussion

5.1 Exogenous sources of new path development contest endogenous thinking

Exogenous sources of new path development such as extra-regional ideas, networks, and knowledge cannot be relied upon alone to create regional development. Regions must have sufficient absorptive capacity to anchor the inflow of ideas and knowledge. Interview data confirms the role of key entrepreneurs in attracting interest in the Barents Sea as a petroleum region on the Norwegian continental shelf.

Induced ideas, networks, and firms often come together with, or supported by, policy interventions as exogenous drivers of path creation. Regional politicians in Finnmark and institutions of formal political power such as regional municipalities lobbied for more of the value created by the MNCs entering the region to be retained locally. The effort was considered successful, as it not only enhanced the MNCs’ interest in the area, but also made it possible to create a foundation of supplier organizations and build regional capacity within the region. As formulated by Binz et al. (2016), ‘anchoring’ is not a one-directional process of attracting external “anchor tenants” that induce local knowledge spillovers, but an interactive process in which regional actors mobilize knowledge, markets, legitimacy, and financial investments (Binz et al. 2016: 13).

The example of the inflow of firms into Finnmark sheds light on our understanding of economic development, and regional and economic growth. The transplantation of the two pioneer MNCs into the region, Statoil and Eni Norge, contributed to economic change: It reshaped the economic structure and labor market in West Finnmark. These two major oil companies were magnets for other MNCs and main contractors such as Aker Solution, ABB, Apply Sørco, BIS Industries, TESS,

Aibel, Halliburton, Schlumberger, and Kuhne-Nagel. In addition, subcontractors were attracted to the area to support and supply these firms. From having zero employees in the petroleum sector in 2000, statistics for 2015 indicate that between 650 and 700 jobs were created for local people. As argued by Feldman (2003: 323), large firms, with their big established organizations, create a demand for services and products, and hence may create new business opportunities for local firms in addition to engendering agglomeration economies. Feldman (2003: 325) describes this type of anchor firm as “a large firm that provides both stability and traffic in ideas.” In the case of Finnmark, investments in the supplier support infrastructure, such as harbors, helicopters, and oil spill contingencies, were facilitated locally as the result of the lobbying and the investment plans of MNCs in the region and the location of all infrastructure in the same territory. Given its strategic geographical position in the Barents Sea, with industrial support systems in geographical proximity, this location in West Finnmark has good prospects for the future, even though it has failed to acquire the status of a normal or thick regional innovation system (RIS) when set against the description of growth factors in the endogenous growth literature.

It has been demonstrated that exogenous sources of new path development have been a key factor in the emergence of a new industrial cluster in the region of Finnmark. This conflicts with the strong emphasis on endogenous sources of new path creation within the evolutionary economic geography literature. Accordingly, the findings in this paper endorse recent work that suggests more attention should be devoted to understanding how the transplantation of firms, industries, and other resources can serve as a mechanism for new path development (Martin and Sunley 2006, Isaksen and Trippel 2016; Nilsen 2016).

5.2 Entering modes of MNCs determine regional paths

Based on a literature review and in the light of the empirical material described in this paper, I revisit Table 1 (Section 2.3) and outline the following analytical framework to enhance a theoretical concept of exogenous path creation linked to the entering strategies of MNCs in peripheral areas. I suggest that external firms such as MNCs can be approached as key-actors in the development of alternative paths of a regional economy in the periphery (Dawley et al. 2014; Isaksen and Trippel 2016). However, MNCs' entering strategies can take many different modes.

The type of entering modes that MNCs choose in the early emergence phases will create different regional outputs regarding path development. In the column headed “Produce and Leave”, the model of MNCs strategies refer to the MNCs' mode and contains MNCs' practices when they conduct a minimum of operations in relation to local engagement at their new location. MNCs rely on standard transactions based on competitive tendering, and create few or no linkages to the local

environment and institutions. In this scenario, MNCs' affiliates are strongly dependent on MNCs' headquarters, and have no strategic options. Keeping most of the MNCs' economy outside the traditional regional economy may lead to the creation of isolated economies within regions. This would lead to growth in the number of inhabitants and "more of the same" in a regional economy, and the economy would grow more slowly than otherwise. Neither of the two studied MNCs has pursued actions within this category.

In the column headed "Stepwise adaption", the model of MNCs' strategies refer to the case when MNCs are interested in building some local capacity around their operations, but they do not fully engage with local input, and secure most operations through their headquarters. Compared with the former strategy, this strategy leads to a more open information policy that opens up some possibilities. This may lead to some integration of new regional firms into minor operations, but restricts the development of regional firms' competencies. In the early phase of MNCs' entry within Finnmark, and especially from 2002 until 2007, this category can explain partly how Statoil adapted to the regional environment. Typical sets of contracts awarded to regional firms were in low-tech sectors such as construction, transportation, logistical systems, and electricity. Regarding procurement procedures, I refer to some minor adjustments as ranging across a set of indicators in favor of local and regional enterprises, such as response time in services. As for regional industry, this strategy may lead to path extension through mainly incremental processes and product innovations in existing industries and technology paths, but it also could create new possibilities in a few firms.

Finally, in the column headed "Integrate" in Table 1, the third and most wide-ranging mode refers to a fundamental change of dynamics in the regional economy. This category refers to the most extensive and in-depth couplings between MNCs and places, and represents new firms in new sectors developing in the region. MNCs enable suppliers in the region by supporting competence building and sponsorships, and they establish fully staffed operational offices for their most important functions. In such a strategy, MNCs establish a procurement strategy that requires main contractors in the operational phase to be locally based. This leads to an integration of MNCs' activities into the regional economy in new ways and will lead to increased and new market shares for regional firms. This strategy could be followed by changes in education systems and would create spin-offs in new markets. This, in turn, would lead to a defined area of expertise in the region, with its firms specialized in market segments in which leading firms have a prominent market position. As outlined in Section 4, since 2008, Eni Norge and Statoil have used this mode of entering. In this model, there are overlaps between the different strategies. In this respect, my intention has been to develop a new analytical framework that will enhance our understanding of MNCs' entry into new regions and peripheral areas.

6. Concluding remarks

By combining the perspectives of extra-regional sources of new economic growth in the early phases of emerging industries in the Norwegian High North, this study of MNCs' strategic behavior and their local input programs has shown that path creation is not solely a process of endogenous mechanisms. I have demonstrated that regional path creation is more than a regional and territorialized process, as it is connected to extra-regional actors and networks outside the region. MNCs have entered the region with networks and knowledge, and their actions have produced local economic growth and ripple effects, and have integrated regional firms into global production networks. MNCs in the region have been attractors of a significant number of oil service firms in their move to Northern Norway, which has increased demand for products and services within the region. This has upgraded regional firms' competencies and supplies to the new regional economy.

Isaksen and Trippl (2016) found that firms and policymakers at a multiscalar level and other key actors played a pivotal role in creating and sustaining new industrial activities in the periphery. Building supportive institutional structures from a weak base turned out to be a critical factor. As demonstrated in the present paper, proactive regional actors that lobbied and acted as pro-active entrepreneurs to highlight the resources in the Barents Sea. Together with the rich resources in the Barents Sea I have highlighted that key mechanisms that facilitated the inflow of MNCs to the region rests on the introduction of policies for local input and how it shapes new regional paths. Policies of local content have contributed to a "break out" of the "lock-in" trajectory for the region. Except novel contributions from the FDI-literature, this process tends mainly to be overlooked in current theories of endogenous, self-sustaining path-creation processes. With respect to this perspective, the attention I have paid to extra-regional environments and exogenous sources has demonstrated the importance of balancing the focus on endogenous growth processes with exogenous sources of growth by examining MNCs' role in regional economies.

However, MNC entry can take different modes. As a response to this, I have introduced a model to enhance our understanding of the range of MNCs' entering modes in peripheral regions. The model can be a tool to create an analytical framework for further studies of early-phase entering modes of MNCs within sparsely populated areas. It connects differences in entry modes with different regional development paths and may prompt further theorization.

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Figure and Tables