Hooked Up to the International Artistic Community:

External Linkages, Absorptive Capacity and Exporting by Small Creative Firms

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Abstract:

The contemporary economy is marked both by the growth in international trade and the increasing importance of the creative industries. However, these activities are dominated by big firms and big cities, spurring a large body of research into creative cities in the last decade. Going against this trend, this paper examines how small creative firms in small cities can successfully export their products. Drawing on survey data from 464 small firms in the creative industries in the county of Rogaland, Norway, it examines how cooperation with partners and active strategies for identifying and absorbing knowledge from these partners affect the firms' ability to sell their products abroad. Firms with extensive collegial linkages, especially those that cooperate with partners in the international artistic community, are particularly successful at exporting. However, cooperation within the national artistic community may have a negative effect on exporting. Furthermore, having strategies for absorbing knowledge from external partners has an independent effect on the ability to export. These findings highlight the need for firms in small cities to develop linkages to the international artistic community, rather than trying to replicate global creative cities at a small scale through relying only or mainly on local cooperation.

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Introduction

While it may have become a truism that firms nowadays increasingly compete in global markets, it remains the case that only a minority of firms actually export their products to foreign markets. Entering foreign markets is highly resource demanding and exporting has therefore mainly been the domain of large firms, of firms in core regions, and of firms in certain industries. Outputs from the creative industries are in many cases easy to transport physically, but appreciation of their products can be highly dependent on the culturally specific tastes of consumers. This imposes additional demands for knowledge of the foreign market for successful market entry.

Nonetheless, a growing number of firms enter international markets rapidly from inception. This has created an interest in explaining what characterises smaller firms that serve international markets (Oviatt and McDougall 1994; Zahra and George 2002; Rialp et al. 2005; Oviatt and McDougall 2005b; Wright et al. 2007). Trade in the creative industries is also growing, and Montgomery and Potts (2008:248) note that creative industry firms "are often 'born global'". Finally, while a few global metropolises in the developed world still dominate the international creative industries market, some small places manage to find niches for specialised products and claim a position in the global market.

However, for a lot of producers in the creative industries, globalisation still represents more of a threat than an opportunity: They are small firms – in many cases individual entrepreneurs – and located in regions with no comparative advantage, whether in a large or a niche market for creative goods and services. They face increasing competition from foreign producers entering their markets, while lacking the resources to export their own products. Some producers are still successful in exporting under these circumstances. In these cases, they defeat the triple barriers of size, location and industry to become successful exporters. There has been little research on how they manage to enter international markets despite these powerful barriers. An understanding of how these producers have developed the capabilities to export would be important to develop appropriate policies for creative firms in peripheral regions.

This paper examines the determinants of exporting in one such peripheral region – Rogaland in Norway. In general, Norwegian creative firms face barriers of belonging to a small internal

market and a small language and cultural community, as well as having few major cities that could serve as cultural hubs. Furthermore, Rogaland is itself a periphery within Norway's creative industries sector, with an economy that relies heavily on natural resources and manufacturing. However, the role of its largest city, Stavanger, as European Capital of Culture for 2008 signalled both an attempt to develop creative industries within the region and to increase internationalisation within this industry. This makes it an interesting case for studying how peripheral producers can successfully internationalise. Consequently, the question asked in this paper is: What characterises small, creative producers that sell their products abroad?

We examine a sample of 464 predominantly small firms or individual entrepreneurs in the creative industries of the region, finding that 17 per cent had some income from abroad during 2007. The successful exporters were evenly distributed across different types of creative industries and locations in the region. What set them apart were mainly their networking skills and ability to learn from others, reflecting a high level of absorptive capacity. Successful exporters tended to prioritize the development of good contact with partners and interacted frequently with colleagues in the international artistic communities within their industry. These findings suggest that investing in the development of networks and the exchange of knowledge might be particularly important for producers in peripheral locations who cannot rely on the buzz of a large creative and artistic community in keeping up-to-date with the developments in their field.

Status of knowledge

What do we know about exporting in small firms?

Research on international entrepreneurship has noted that a growing number of firms enter international markets rapidly from inception (McDougall et al. 1994). This has created an interest in what characterises such International New Ventures (Oviatt and McDougall 1994) or Born Global firms (Knight and Cavusgil 1996). One of the main insights from this literature is that the ability to enter international markets at an early stage depends to a large extent on the knowledge resources of the firm, in particular its ability to access and exploit external knowledge (Oviatt and McDougall 2005a). The ability to enter international markets depends not only on the intensity of knowledge in the actual product or service, but also on knowledge of the market that the firm is entering. Thus, organisational learning - "the process of assimilating new knowledge into the organisation's knowledge base" (Autio et al. 2000:911) - becomes a prerequisite for entering international markets. Two things are of particular

importance in this regard: On the one hand, the entrepreneur's external network, which provides access to external knowledge, and on the other hand, his or her ability to interpret external knowledge, which determine the extent to which the firm is able to exploit this knowledge.

A substantial body of knowledge recognises the importance of external linkages for the development of new knowledge in firms (e.g. Pittaway et al. 2004; Nooteboom 2004). Firms that can rely on a broad network of external linkages to supplement their own knowledge and ideas learn faster, innovate more, and are more successful. Networks can take different forms: Many contributions focus on inter-firm connections (e.g. Gulati 2007; Huggins 2010), such as links to suppliers and customers, or horizontally to competing firms. Others emphasise connections to other types of organisations, such as universities or research institutes, or the public sector, for instance in the triple-helix framework (e.g. Etzkowitz and Leydesdorff 2000).

However, accessing knowledge through external linkages is not sufficient. The firm must also have the capacity to absorb the new information gained through its networks (Oviatt and McDougall 2005a). Thus, it needs to have or develop sufficient absorptive capacity, which is "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen and Levinthal 1990). Absorptive capacity is path dependent, implying that prior knowledge is decisive for the firm's ability to make use of new information on foreign markets. This means that the knowledge and experience of the founder or the entrepreneurial team of the firm are important for its ability to use external information to commercial ends.

On this basis, we may formulate the following hypotheses:

H1: External linkages to other firms are associated with higher levels of exporting by small firms.

H2: External linkages to research institutions and governments are associated with higher levels of exporting by small firms.

H3: Absorptive capacity is associated with higher levels of exporting by small firms.

H4: The impact of external linkages on exporting by small firms is higher for firms with better absorptive capacity.

How does this apply to the creative industries?

While the literature on international entrepreneurship may say something about the conditions favourable to exporting in small firms generally, it lacks a comprehensive treatment of the

creative industries, raising the question of how these theories might apply to small firms in the creative industries. We know that the drivers of exporting vary considerably across industries (Wagner 2001). Furthermore, the creative industries differ from traditional manufacturing in the foundations of competitive advantage, relying mainly on unique products and processes rather than low input cost (Porter et al. 2007). Producers in the creative industries operate in markets with a high demand for novelty, as products are purchased not only because of their practical utility, but also due to the attractiveness or novelty of the product (Dewett and Williams 2007). Constant innovation is thus an imperative in the creative industries. The ability to access and exploit external knowledge could thus be expected to be even more important for exporting in the creative industries.

Creative industries encompass economic activities which 'have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property' (DCMS 2001:5). This includes sectors such as media, design, arts and architecture. This definition also includes cultural industries, and this literature review therefore also includes contributions specifically on these industries (sometimes referred to as the "cultural and creative industries", e.g. Lazzeretti 2013). While the manufacturing industries produce standardised products, the output from the creative industries consists mainly of products with high aesthetic or semiotic content (Scott 2000), whose value largely derives from their ability to satisfy immaterial needs. Competition between producers is thus based on the item's 'sign value', rather than its 'use value' (Lash and Urry 1994). This further implies that the value of a product to the individual consumer is crucially influenced by the choices and valuations of other consumers and the social networks between them (Potts et al. 2008). The evaluation and interpretation of a product's sign value is culturally embedded and context specific, creating a need for producers to understand the values and norms of foreign consumers in order to successfully market their products abroad.

The creative industries furthermore occupy a space in between commercial and artistic activity, belonging both to the cultural and business field (Bourdieu 1993; Caves 2000; Eikhof and Haunschild 2007). Thus, they need to find a "balance between creative input and day-to-day business organization" (Hauge 2012:115). This has implications for the kinds of external linkages that they need to develop. While connections to suppliers and customers are as important as in any other industry, creative producers also thrive on being part of artistic communities in their fields. Consequently, their external linkages need to include other artists as well as the business linkages highlighted in the previous section.

This leads to the formulation of the following hypothesis:

H5: External linkages within the artistic community are associated with higher levels of exporting in the creative industries.

The geography of exporting in the creative industries

Places overwhelmingly export products in sectors where they have a comparative advantage. Which places might possess such a comparative advantage in the creative industries? A common theme in the literature is that the nature of production in these industries is spatially concentrated (Scott 2000; Rantisi 2002; Kelly and O'Hagan 2007; Lazzeretti et al. 2008). The notion of 'creative cities' underscores the role of urban agglomerations in fostering cultural, aesthetic and industrial creativity (Landry 2000; Florida 2002). Beyond sustaining collective creative processes, cities may also affect individual creativity through containing elements of buzz or excitement, or from brands or reputations as hotspots of creative production (Drake 2003). Major global cities could thus be expected to have a comparative advantage in the creative industries that further increase the barriers to exporting for producers in smaller places.

These dynamics notwithstanding, there are opportunities also for small places in the creative economy. While national markets may have become more integrated, the global market has also been increasingly divided up into niche markets for specialised cultural products, catering to sub-cultures across national boundaries. This allows for the development of small-scale global production that may be an entry-point into the global market for peripheral regions (Scott 2001). If creative products are indelibly marked by the place in which they were created (Drake 2003; Scott 2006), a unique site of production might even itself to some extent be an asset in a market that demands product variety.

For producers in regions which neither enjoy the benefits of agglomeration economies nor possess a strong brand within a niche market, however, exporting in the creative industries is likely to be a challenge. The development of the creative economy in these places has been a neglected area of research, although there is now a growing literature on the topic of small cities (Jayne et al. 2010; Lorentzen and van Heur 2012), rural areas (White 2010; Petridou and Ioannides 2013), and 'creative regions' (Cooke and Schwartz 2007; Scott 2010). The most widely advocated strategies for overcoming these challenges focus on the beneficial impact of linkages and networks. There are two main avenues to pursue in this regard (Rodríguez-Pose and Fitjar 2013).

The first option is to build up in smaller regions a critical mass of creative producers and to foster extensive collaboration between them – the big city writ small. Intensive face-to-face collaboration and formal and informal contacts within a tight-knit network of creative producers located in a limited geographical area is conducive to knowledge spillovers that can strengthen the competitiveness of each individual producer (Audretsch and Feldman 2004; Storper and Venables 2004). Lorentzen and van Heur (2012) note that small cities may possess some advantages in this regard, such as potentially smaller cognitive distance between actors in different parts of the economy and better opportunities for bonding and bridging between creative actors.

The other option for producers is to pursue strategies that help them to overcome their distance to the main centres of creative production in their field (Fitjar and Rodríguez-Pose 2011a). Geographical distance needs to be offset by proximity in other dimensions (Boschma 2005; Torre and Rallet 2005). If one cannot be geographically close to the main hubs of creativity, this geographical distance needs to be compensated by closer cognitive or social proximity – i.e. by developing shared concepts and worldviews, as well as friendships with producers in global hubs. The construction of global pipelines connecting to global circuits of ideas represents one strategy for achieving this (Bathelt et al. 2004). Consciously investing in the development of strategic partnerships with partners in other locales allow for the generation of decisive, non-incremental knowledge flows that are key to the development of new ideas (Owen-Smith and Powell 2002, cited in Bathelt et al. 2004). Even some of the largest and most productive clusters in the global creative economy, such as the movie industry in Hollywood or the advertisement industry in London, depend crucially on such extra-local linkages for new knowledge and ideas (Grabher 2002; Scott 2002).

Thus, we may formulate two alternative hypotheses:

H6: External linkages within the national artistic community are associated with higher levels of exporting in the creative industries.

H7: External linkages to the international artistic community are associated with higher levels of exporting in the creative industries.

Research methods and data

Introducing the case of Rogaland

Research on the creative industries has – with some notable exceptions, as noted above – so far concentrated mainly on case studies either of creative industries in large cities or of specialised

clusters playing a key role in niche markets. This line of research can only to a limited extent address the question of how collaboration and absorptive capacity affect producers' ability to export products from places that do not possess these specific characteristics. Such questions require probing why some firms outside these locations succeed at exporting, while others fail. To that end, this article examines the creative industries in Rogaland county in Norway. Rogaland is not a hotspot for the creative industries. It is a major oil hub and relies heavily on natural resources and manufacturing. However, the appointment of the county capital Stavanger as European Capital of Culture in 2008 brought increased policy and public attention to the cultural and creative industries, accompanied by large investments in arts and culture in subsequent years.

The study is based on a survey of firms in the creative industries in Rogaland. The survey examined exporting activities, collaboration and networking, forms of organising, and sources of professional development. The survey questionnaire was developed on the basis of insights from earlier in-depth interviews with 12 entrepreneurs in the creative industries in Rogaland, and the final questionnaire was discussed thoroughly with representatives of the industry. It was sent to the whole population of 3804 firms registered in the creative industries in Rogaland in 2008 in the compulsory Norwegian Register of Business Enterprises. A total of 464 responses were elicited. The responding firms are broadly representative of the population in terms of sectors and geographical location within the county, with some overrepresentation of older firms (established 5-10 years ago). We included firms registered in sectors defined as being part of the creative industries by the DCMS (2001). The survey was based on a similar survey conducted in 2003, from which we present some comparative data on change over time in the creative industries in Rogaland.

Firms in the creative industries constituted 11 percent of firms in Rogaland in 2009, employing around 12 000 people (Jøsendal et al. 2009). Most firms are very small. About 90 percent of the firms consist of four employees or fewer, with 70 percent being sole entrepreneurs. The firms are also fairly young. Around 45 percent of firms active in 2009 were established since 2003, and 63 percent since 2000. The largest sector is creative arts (writers, painters, filmmakers, composers, etc.), which makes up 19 percent of firms in the creative industries. The customers are mainly regional, with 77 percent of sales taking place within Rogaland. Around 16 percent of the goods and services produced reached foreign markets in 2008, up from only 5 percent in 2003. When it comes to procurement, about 10 percent of the supplies

to creative industries were bought outside Norway, a slight decline from 13 percent in 2003 (Jøsendal et al. 2004).

An empirical model of exporting in the creative industries

External linkages of various types are expected to be important for the success of small firms in the creative industries (H1-H2 and H5-H7). Furthermore, we expect the effect of external linkages to be mediated by the internal capacity of the firm itself to identify and absorb the knowledge being transmitted by other agents to whom the firm is linked (H3-H4). We test these propositions by running a series of logistic regression analyses measuring the probability of exporting among producers in the creative industries in Rogaland. The first model examines how external linkages alone affect the probability of exporting, testing H1, H2 and H5-H7. The second model examines whether exporting depends on both external linkages and absorptive capacity, testing H3. Finally, the third model examines the proposition that absorptive capacity mediates the effect of external linkages, testing H4. Our empirical models are specified as follows:

Model 1: logit(π(Export$_i$)) = α + β_1 External linkages$_i$ + γ_2 Controls$_i$ + ε_i

Model 2: logit(π(Export$_i$)) = α + β_1 External linkages$_i$ + β_2 Absorptive capacity$_i$ + γ_3 Controls$_i$ + ε_i

Model 3: logit(π(Export$_i$)) = α + β_1 External linkages$_i$ + β_2 Absorptive capacity$_i$ + β_3 External linkages$_i$ * Absorptive capacity$_i$ + γ_4 Controls$_i$ + ε_i

where π refers to the probability that company i has had income from abroad in the preceding year. The operationalisation of the variables is further specified immediately below. ε represents the error term.

External linkages: In order to examine whether the firm acquired knowledge through external linkages, the survey included eight questions probing the extent to which different sources (colleagues, suppliers, customers, competitors, R&D institutions, government, the national artistic community, the international artistic community) contribute to keeping staff up to date on developments within their profession. Respondents rated the importance of each source of knowledge on a four point scale. Table 1 shows the distribution of responses across the sampled firms.

----- Table 1 about here -----

Interaction with colleagues is overwhelmingly the most important source for keeping up to date, with 46.1 percent of firms relying to a high extent on this source. At the other end of the scale, more than half of firms rely to a low extent on government and on R&D institutions for keeping up to date, and only around a fifth of firms rely on these sources of knowledge to a high or fairly high extent. Contacts in the international artistic community are at least as important as contacts within the national artistic community, signalling a fairly high reliance on international linkages for firms in the creative industries in Rogaland.

The different sources of knowledge are linked to different types of interaction. Some refer to *business linkages*, whether in the form of suppliers, customers or competitors, or to colleagues within a business. Others are *artistic linkages* in the artistic communities of which the firm is part, whether at a national or international scale. This distinction highlights the nature of firms in the creative industries as straddling the boundaries between art and commerce, ideally drawing on knowledge from each sphere in developing products that are both creative and commercially viable. Finally, relations to R&D institutions and governments are not obviously part of either of these categories. Rather, they are *public sector linkages* to institutions which support arts and culture as well as industry. R&D institutions have a responsibility to produce and disseminate knowledge, whereas governments provide financial support, which may also entail knowledge transfer.

We assess the expectation that the knowledge sources fall into these three different dimensions through a principal components analysis, which was specified to extract three components. The results of the analysis are shown in Table 2. Before varimax rotation, two components had eigenvalues above 1, while the third had an eigenvalue of 0.94, just below the standard threshold. The fourth component had an eigenvalue of 0.69. A two-component solution might therefore be adequate, but we proceed with three components based on the conceptual argument outlined above and because the third component is on the borderline between inclusion and exclusion[1]. This three-component solution explains 70 percent of the variation in the data.

----- Table 2 about here -----

The first component refers in particular to the use of R&D institutions and governments as sources of knowledge. The national artistic community also has a fairly high loading on this dimension, but it is also associated with the dimension that includes the international artistic

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1 We also ran a factor analysis, which returned three factors with positive eigenvalues.

community (component 2). The third component is related mainly to learning from suppliers and customers. However, colleagues and competitors do not load particularly strongly on this component, but are rather closely related with artistic linkages (component 2). On this basis, we construct three additive indices that capture learning from different sources of knowledge: *Collegial linkages* refer to linkages to the national and international professional community, to colleagues and to competitors, *business linkages* refer to linkages to suppliers and customers, and *public sector linkages* refer to linkages to R&D institutions and governments. In each case, the index is constructed by simply averaging the scores for the variables included in the index[2].

Absorptive capacity: The concept of absorptive capacity was developed mainly in work on manufacturing industries (Cohen and Levinthal 1990), and has tended to rely on indicators that are relevant for manufacturing firms, such as R&D expenditure. Such indicators are less appropriate in a study of creative industries, which tend to do little formal R&D, even if development of new products is an integral part of their business model. It is therefore necessary to use other indicators to measure the capacity of the firm to identify and absorb knowledge transmitted by external contacts. In this paper, we rely on two measures. Firstly, we examine the human capital stock of the company. For sole entrepreneurs (70 percent of the sample), this variable measures the number of years studied beyond compulsory schooling. For multi-person firms, we apply the same measurement to the education level of the most highly educated team member.

Secondly, we include a measure of firm strategy for learning from external sources. This variable is less commonly used in the literature on absorptive capacity. It attempts to capture active efforts by the firm to develop its ability to learn from partners, going beyond formal qualifications in addressing a softer dimension of the concept. It examines agreement with the following five statements on the absorptive capacity of the business, all measured on a five-point Likert scale:

Core competence: "The business is familiar with its external partners' core competence."
Supplier relations: "The business exchanges product information with suppliers."
Customer relations: "The business exchanges product information with customers."
Guidelines: "The business has guidelines for cooperation with other businesses that
    complement the business' skills."

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2 If one or more answers were missing, either due to non-response or to 'don't know' answers, the index was based
    on an average across the other questions.

Strategy: "Developing good contact with key partners is part of the business strategy."

Table 3 shows the distribution of responses for each statement. More than three quarters of firms agreed that developing good contact with key partners was part of their business strategy. However, levels of agreement were lower when the firms were probed on more specific types of strategies, such as having guidelines for cooperation or exchanging product information with suppliers or customers. Still, more than a third of the firms fully agreed – and another third partly agreed – that the firm is familiar with the core competence of external partners.

----- Table 3 about here -----

A principal components analysis was used to examine whether the five indicators were all measures of the same underlying concept of firm strategies for identifying and absorbing knowledge. The analysis returned one component with an eigenvalue above 1. This component had an eigenvalue of 2.36 and explained 47.2 percent of the variation in the data. The eigenvectors were also similar for all five variables, ranging from 0.39 for *strategy* to 0.51 for *customer relations*. On this basis, we constructed an index of firm strategy, taking the average value for each firm on the five variables (or on the variables for which data was available) as the score for the index.

Controls: The analysis also controls for some relevant background factors that could be expected to affect both the external linkages of the firm, its absorptive capacity and its likelihood of exports. These are the size of the company, its location, and five indicators for sector within the creative industries. *Company size* is the natural logarithm of the number of full-time equivalents in the company (plus 1 to incorporate zeros). A logarithmic transformation was used because thce effect of additional employees is expected to decline with increasing company size, and also because the distribution on the original company size variable is highly skewed (median = 1, mean = 4.49). The logged variable has a mean of 0.82 and a median of 0.69. *Regional centre location* is a dummy variable, coded 1 for companies located in the urban area of Stavanger, Sandnes, Sola and Randaberg municipalities, 0 otherwise. *Sector* is a set of dummy variables for architecture, advertising, dissemination (publishing houses, libraries, museums and galleries), audiovisual (movies, photography, radio, TV, computer games and other software), music (production, distribution, sales), and artistic expression (painting, composing, writing, stage acting, handicrafts, etc.). The variables are coded 1 if the company is in the sector, 0 otherwise. More than 30 percent of the companies are involved in several activities and score 1 on two or more of the variables. These variables should therefore not be

interpreted as expressions of different categories of one underlying variable, but rather as six individual variables expressing whether the company is involved in the activity or not. Table 4 shows the frequency distributions for each of the control variables.

----- Table 4 about here -----

Dependent variable: Exporting is measured as a dichotomy, taking the value 1 if the company had income from abroad – whether directly or through an agent – in 2007, 0 otherwise. This is a crude measure, which does not differentiate between firms with a large share of exporting and those which only occasionally sell products abroad. However, being present in foreign markets or not is arguably the main distinction in the data, as only a small minority of firms have any income from abroad at all. Of the 386 companies which responded, 64 had income from abroad, making up 16.6 percent of the sample. This is not unusual. For instance, de Propris and Wei's (2009) study of the Birmingham Jewellery Quarter found that only 1 out of 108 firms in their sample were oriented towards the international market.

Non-exporting firms were asked some additional questions about why they did not internationalise their business. Around 70 percent replied that it had never been seen as relevant. Nearly half of the firms said they lacked knowledge about what possibilities there were in foreign markets, while a similar proportion lacked international networks. This underlines the importance of knowledge and networks for entering foreign markets (Jøsendal et al. 2009).

Table 5 shows the distribution of responses in 2003 and 2008. An increasing proportion of firms seem to be aware of opportunities of exporting. Fewer firms had made unsuccessful attempts at exporting in 2008 compared with 2003. There was also a lower proportion of firms lacking international networks in 2008 than in 2003. However, knowledge remains an obstacle to entering international markets, with nearly the same proportion of firms stating that they lack knowledge on internationalisation, whereas significantly fewer agreed in 2008 that internationalisation had never been relevant. A larger proportion of firms in the creative industries in Rogaland thus seemed to be attentive to business opportunities abroad in 2008 than five years earlier.

----- Table 5 about here -----

Results

Table 6 presents the results of the logistic regression analyses. Model 1 examines the impact of actively drawing on external sources for keeping up to date on professional developments. The

results indicate that linkages to external knowledge sources significantly increase the likelihood of exporting. However, it is not trivial what kind of sources companies use for these purposes. Collegial linkages to colleagues or peers in competing companies or the broader national and international artistic community have a strong and significant positive effect on the probability of exporting, supporting H5. For every one unit increase in the index score (e.g. relying to a fairly high extent on all four knowledge sources, rather than to a fairly low extent on all of them), the odds of exporting increase by 90 percent. Conversely, close linkages to other knowledge sources, whether in the business community or in the public sector, do not significantly affect the likelihood of exporting. H1 and H2 are therefore not supported. Controlling for the absorptive capacity of the firm, as is done in model 2, does not change the results substantively.

----- Table 6 about here -----

Model 2 examines the effect of absorptive capacity on exporting. The traditional measure of absorptive capacity, relying on human capital stock, is not significantly related to the probability of exporting. However, firm strategy does have a positive effect, which is significant at the 90 percent level. For every one unit increase in the firm strategy index score, the odds of having income from abroad increase by 59 percent. This provides some support for H3.

Finally, model 3 examines the hypothesis that absorptive capacity mediates the effect of drawing knowledge from external sources (H4). The results indicate that this is true for the human capital stock of the company, although the nature of its mediating function depends on what external knowledge sources the firm uses. In line with the predictions of the literature, learning from public sector institutions has a beneficial effect on the likelihood of exporting when the human capital stock of the firm is high. However, when the firm has little human capital, interacting with public sector institutions has a negative effect on the probability of exporting. The interaction effect works in precisely the opposite direction for collegial linkages: in this case, firms with a low human capital stock tend to export more if they have close collegial linkages, whereas firms with a high human capital stock are much less affected by these linkages. Figure 1 shows the predicted probabilities of exporting at different levels of collegial (top plot) and public sector (bottom plot) linkages for firms with the lowest (solid line) and highest (dotted line) levels of education, respectively. For firms with high levels of education, the effects of both types of linkages are very similar, whereas they are radically different for firms with low levels of education. Finally, human capital stock does not seem to have a significant role in mediating the effect of learning from suppliers and customers on exporting.

Firm strategy also does not significantly mediate the effects of interacting with any of the sources of knowledge examined.

----- Figure 1 about here -----

Among the control variables, the size of the company only has a significant impact on the likelihood of exporting when absorptive capacity is not controlled for. Contrary to prominent claims in the literature (e.g. Lorenzen and Frederiksen 2008), urban location does not significantly affect the ability of firms in a small and peripheral region to export their products. This is similar to the more general observation of Lorentzen and van Heur (2012) that small cities typically have more spatially distributed patterns of creative production. The activity type of the company is only in some cases related to the likelihood of exporting. Exporting levels are clearly lower for architecture and advertising, and possibly also for artistic expression (model 2). However, none of the other activities significantly affect firms' ability to export.

The analysis reported in Table 7 extends the results from Table 6 by replacing the three indices for linkages to external knowledge sources with the eight original knowledge source indicators in order to test H6 and H7. Unfortunately, the sample size drops to 174 cases[3]. Nonetheless, deconstructing the indices allows us to examine how each individual source of knowledge affects exporting, which brings out some interesting patterns. The positive effects of collegial linkages seem to have been driven entirely by linkages to the international artistic community, which has a strong and significant effect on the ability to export. A one unit increase in the extent to which a firm relies on the international artistic community for keeping up to date on developments within the profession increases its odds of exporting by 135 percent, a result that is significant at the 99 percent level despite the reduced sample size. This supports H7. Conversely, linkages to the national artistic community actually significantly reduce the likelihood to export, with a one unit increase on this variable cutting the odds of exporting in half. H6 is therefore not supported. The final two components of the collegial linkages index – customers and competitors – do not significantly affect the probability of exporting, although both tend towards the negative. None of the components of the business linkages and public sector linkages indices significantly affect the probability of exporting, meaning that H1 and H2 are still not supported. The coefficients for the two absorptive capacity variables remain

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3 This is partly due to non-response to any of the questions related to use of knowledge sources and partly to the loss of 19 firms in architecture, which now predicts failure perfectly.

similar to those reported in Table 6, although firm strategy ceases to be statistically significant due to the reduced sample size.

----- Table 7 about here -----

These results question the idea that extensive collaboration within a tight-knit network of local creative producers is a useful method for promoting competitiveness and exporting. An excessive reliance on learning from other members of the national artistic community is potentially destructive for the ability of firms in the creative industries in Rogaland to export. Nor do close linkages to suppliers, customers, competitors, colleagues and governments, many of whom are bound to be located within Norway, appear to be very helpful in promoting exports – indeed, the coefficients of many of these indicators also tend to be negative, if not significantly different from zero. Instead, linkages to the international artistic community enable firms to keep themselves updated on the international market and international developments within their field. These connections appear to be closely connected to the ability to export products to foreign markets.

Conclusion

In line with previous studies of the creative industries, this paper has shown that interacting and engaging with external sources of knowledge is associated with the development of entrepreneurs' and small firms' potential to market and sell their products internationally. However, the linkages that matter, at least in a small city on the periphery of the global economy, differ somewhat from the portrayal in much of the literature of cooperation within localised and tight-knit – usually urban – communities (Landry 2000; Florida 2002; Lorenzen and Frederiksen 2008). The successful exporters in Rogaland are not necessarily urban, nor do they rely mainly on local interaction. Rather, those who have close links to the international artistic community are most likely to be successful at exporting, and a large share of those who do not export cite the lack of international networks and of knowledge as important barriers. Observations by Grabher (2002) and Scott (2002) on the importance of extra-local linkages in generating new knowledge in London and Los Angeles suggest that this is not necessarily only a small-city phenomenon, but it is arguably even more important in small and peripheral cities where there are less new ideas being generated locally (Fitjar and Rodríguez-Pose 2011b).

Of course, such linkages are also more challenging to establish in smaller cities that are usually less connected to the outside world than the major global metropolises. Producers in Rogaland

are lucky in this regard, having better access to international air connections and sophisticated telecommunications technology than most peripheral cities, as well as – specifically for the creative industries – having recently served as the European Capital of Culture, which may have helped many producers develop new international connections. However, none of these aspects make the need for international connections any less acute in other peripheral locations.

The paper has also underscored the importance of firm strategies for identifying and absorbing external knowledge. All other things equal, firms that explicitly pursue such strategies are more successful at exporting. This type of absorptive capacity is more closely related to success in exporting than the more traditional measure relying on education levels, which do not significantly affect exporting. However, education does play a crucial mediating role, which is different for different types of linkages. A high level of education in the firm is crucial for successfully absorbing knowledge through public sector linkages. Collegial linkages have more of a substitution effect for education, being particularly important for firms with low internal levels of education. For firms in the creative industries, absorptive capacity is a complex and contingent phenomenon, with its effect on exporting depending both on the nature of the firm's absorptive capacity and on the type of knowledge that the firm wants to absorb.

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Table 1: Sources for keeping up to date on developments within the profession

Source	To a low extent	To a fairly low extent	To a fairly high extent	To a high extent	N
Colleagues	6.7 %	10.1 %	37.1 %	46.1 %	356
Suppliers	19.3 %	32.1 %	33.5 %	15.1 %	337
Customers	15.3 %	33.3 %	30.1 %	21.3 %	385
Competitors	23.5 %	32.8 %	29.6 %	14.0 %	378
R&D institutions	50.5 %	28.3 %	14.0 %	7.2 %	293
Government	53.0 %	27.2 %	14.6 %	5.2 %	287
National community	26.1 %	27.8 %	31.8 %	14.3 %	349
International community	29.1 %	26.7 %	25.0 %	19.2 %	344

Table 2: Principal components analysis, sources of knowledge

Indicator	Comp. 1	Comp. 2	Comp. 3	Unex.
Colleagues	-0.13	**0.52**	0.15	0.47
Suppliers	-0.01	0.11	**0.63**	0.29
Customers	0.10	-0.03	**0.68**	0.24
Competitors	-0.17	**0.58**	0.11	0.40
R&D institutions	**0.55**	0.08	0.02	0.28
Government	**0.67**	-0.16	0.11	0.21
National community	0.37	**0.36**	-0.17	0.24
International community	0.22	**0.47**	-0.24	0.28
Eigenvalue	2.03	1.98	1.56	
Proportion	0.25	0.25	0.20	0.30

Note: Varimax rotated.

Table 3: Firm strategies for identifying and absorbing knowledge

Strategy	Fully disagree	Partly disagree	Neutral	Partly agree	Fully agree	N
Core competence	1.3 %	3.8 %	24.2 %	36.6 %	34.1 %	314
Supplier relations	6.9 %	8.5 %	33.9 %	29.2 %	21.5 %	260
Customer relations	2.9 %	8.4 %	29.8 %	28.5 %	30.4 %	309
Guidelines	17.0 %	12.0 %	28.2 %	23.2 %	19.5 %	241
Strategy	2.1 %	4.3 %	17.4 %	25.3 %	50.0 %	328

Table 4: Descriptive data on the firms included in the sample

Sector	N	% of sample	Employment, full-time equivalents	N	% of sample
Architecture	37	8.0	< 1	144	31.0
Advertising	97	20.9	1	200	43.1
Dissemination	68	14.7	1 – 5	75	16.2
Audiovisual	114	24.6	5 – 20	35	7.5
Music	73	15.7	> 20	10	2.2
Artistic expression	236	50.9			
Several of the above	147	31.6			
None of the above	39	8.4			

Location	N	% of sample	Education	N	% of sample
Urban	316	68.1	Primary/lower sec.	13	2.8
Rural	148	31.9	Upper secondary	67	14.5
			University courses	49	10.6
			University degree	334	72.1

Table 5: Non-exporting firms` evaluation of statements about exporting. Percent agreeing

	2003	2008
We have tried, but not succeeded	12	5
Our products do not have a market abroad	45	33
We lack international networks	62	52
We lack knowledge on internationalisation	50	49
Internationalisation has never been seen as relevant	68	53

Table 6: Logistic regression estimation of the empirical model

Dependent variable: Exporting	Model 1	Model 2	Model 3
External linkages			
Collegial linkages	0.64**	0.56*	0.50
	(0.27)	(0.29)	(0.51)
Business linkages	0.05	-0.23	-0.01
	(0.20)	(0.22)	(0.40)
Public sector linkages	-0.06	-0.09	-0.30
	(0.21)	(0.23)	(0.46)
Absorptive capacity			
Education		0.12	0.77**
		(0.14)	(0.38)
Firm strategies		0.46*	0.38
		(0.25)	(0.37)
Interaction terms			
Collegial * Education			-0.50*
			(0.28)
Business * Education			-0.18
			(0.20)
Public sector * Education			0.65**
			(0.31)
Collegial *Firm strategies			0.23
			(0.40)
Business * Firm strategies			-0.13
			(0.33)
Public sector * Firm strategies			-0.10
			(0.34)
Control variables			
Log no. of employees	0.30*	0.27	0.32*
	(0.17)	(0.18)	(0.18)
Urban	0.16	-0.02	0.06
	(0.35)	(0.38)	(0.39)
Architecture	-2.46**	-2.19**	-2.17**
	(1.07)	(1.08)	(1.09)
Advertising	-1.04**	-0.91*	-0.88*
	(0.47)	(0.48)	(0.48)
Dissemination	-0.14	0.07	0.17
	(0.42)	(0.43)	(0.44)
Audiovisual	0.21	0.21	0.20
	(0.36)	(0.38)	(0.39)
Music	-0.31	0.08	0.08
	(0.45)	(0.47)	(0.50)
Artistic expressions	-0.44	-0.62*	-0.43
	(0.35)	(0.37)	(0.38)
Constant	-1.48***	-1.77***	-2.26***
	(0.43)	(0.52)	(0.66)
N	302	260	260
Pseudo R^2	0.10	0.10	0.12

Note: * = $P < 0.10$, ** = $P < 0.05$, *** = $P < 0.01$.

**Table 7: Logistic regression, effects of individual knowledge sources**

Dependent variable: Exporting	Model 2
External linkages	
Colleagues	-0.21
	(0.33)
Suppliers	-0.20
	(0.27)
Customers	0.17
	(0.26)
Competitors	-0.02
	(0.26)
R&D institutions	0.38
	(0.29)
Governments	-0.07
	(0.30)
National artistic community	-0.67*
	(0.36)
International artistic community	0.86***
	(0.29)
Absorptive capacity	
Education	0.14
	(0.19)
Firm strategies	0.43
	(0.31)
Control variables	
Log no. of employees	0.39
	(0.27)
Urban	0.85
	(0.53)
Architecture	Dropped[#]
Advertising	-1.14*
	(0.61)
Dissemination	-0.24
	(0.56)
Audiovisual	-0.28
	(0.49)
Music	-0.05
	(0.65)
Artistic expressions	-0.29
	(0.48)
Constant	-1.96***
	(0.72)
N	174
Pseudo R^2	0.17

Note: * = $P < 0.10$, ** = $P < 0.05$, *** = $P < 0.01$.

= Predicts failure perfectly.

Figure 1: Fitted probabilities of exporting at different levels of collegial and public sector linkages for firms with low and high levels of education
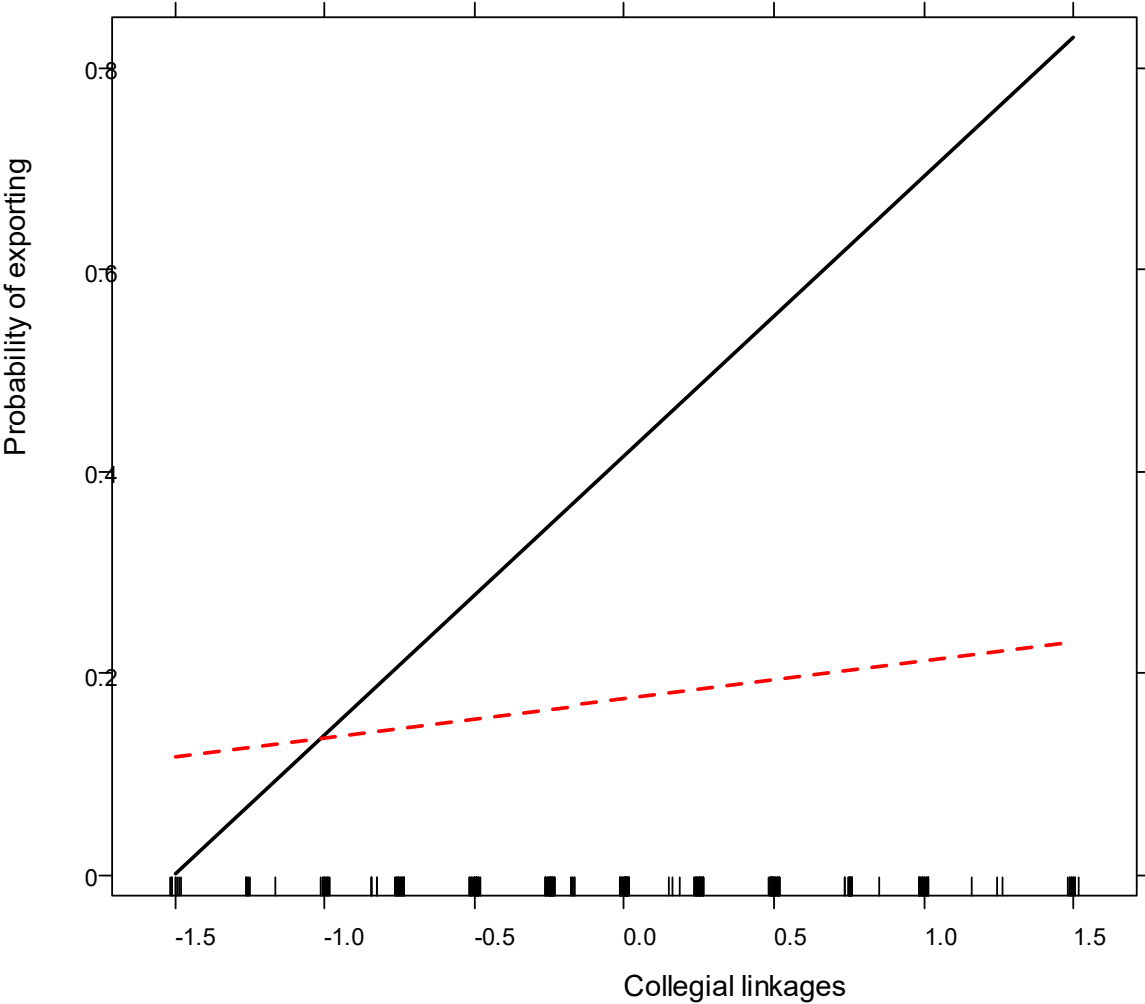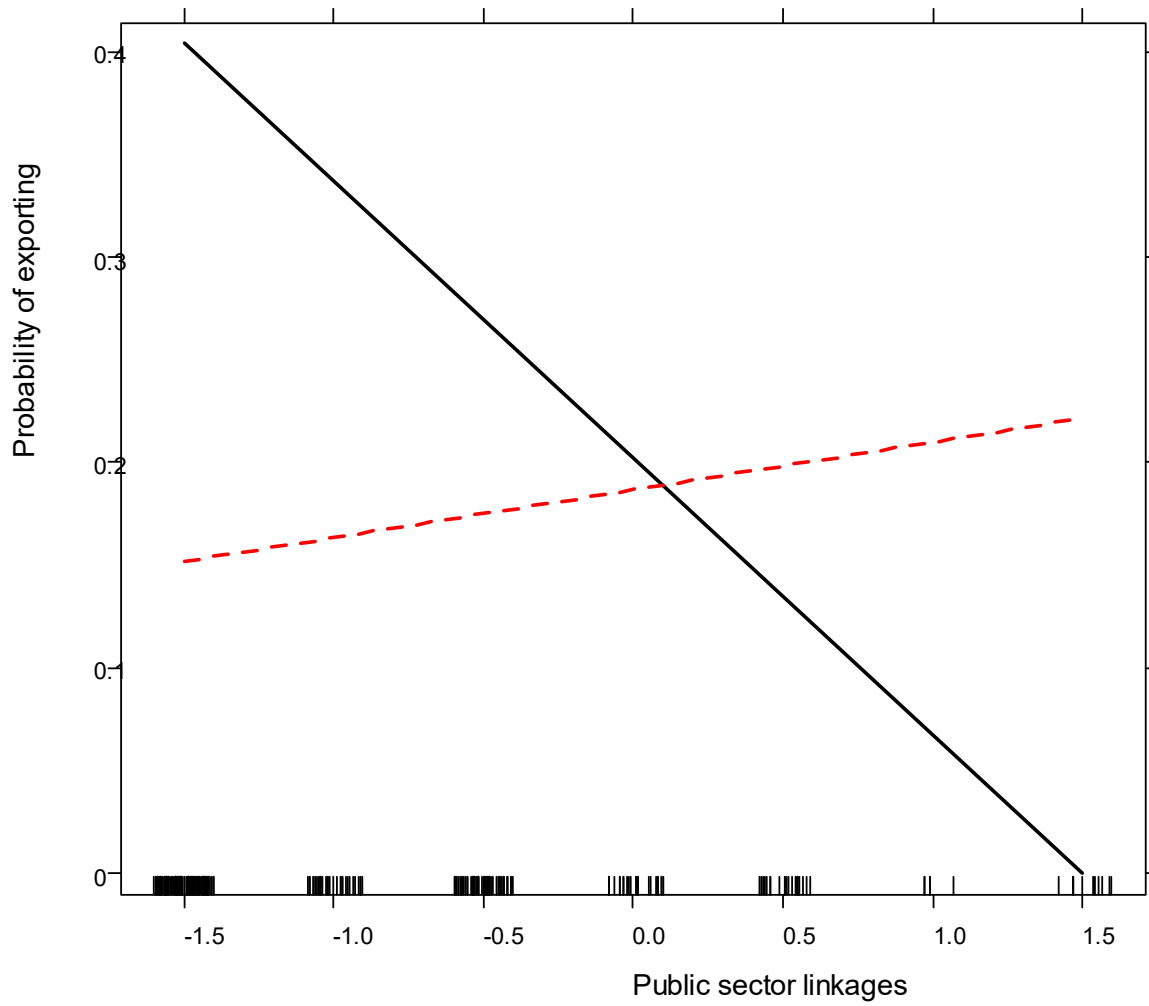
Note: Solid line shows effects of collegial linkages for firms with lower secondary education only. Dotted line shows effects for firms where some staff hold university degrees.