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Boyi Li
London School of Economics

Chrisanthi Avgerou
London School of Economics

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The Social Embeddedness of Industrial Networks in the Age of the Internet: A Tale of Two Regions In China

Boyi Li
and
Chrisanthi Avgerou

Department of Management
London School of Economics

Abstract

In this article we examine the extent to which theoretical views of social embeddedness of economic development that were developed from the study of regional industrial networks continue to be relevant in cases of entrepreneurial networks that are formed in developing countries through the use of internet-based platforms and business services. We frame our research against the background of current libertarian discourse regarding the internet as an enabler of social networking which changes the institutional bearings of production and economic activity of modernity. We draw data from two cases of industrial networks of micro-entrepreneurs in China. Our research shows that although important relationships of the industrial network are virtual, conducted through the electronic tools and services, the networks are strongly socially embedded, sustained through close relationships with the corporation that provides the internet platform as well as the government.

Keywords: Internet, industrial network, social embeddedness, economic development, China, netrepreneurs

Introduction

In the 1990s several streams of research across disciplines converged to the thesis of the socio-cultural specificity of business innovation, competitiveness and economic development (Castells 1996; Uzzi 1997; Walsham 2001). This view was formed in research on the emerging trends of economic globalization, which were understood to be causally associated with ICT innovation, the emergence of the network

organizational forms spanning business firm borders and institutional changes towards deregulation that promoted a globally open economy (Avgerou 2002). On this assumption of the emergence of an ICT-enabled global open market, the significance of culture and path dependence was developed and validated by studies that sought to explain cases of countries and regions that were successful in harnessing innovation for economic growth, such as the Silicon Valley in the US (Saxenian 1994), Japan, Taiwan, provinces in South China (Hamilton and Biggart 1988), Emilia Romagna in Northern Italy (Piore and Sabel 1984). The discourse on the network form of organizing, which emphasized inter-firm connections, cooperation, competition and agglomerations in the context of ICT-enabled globalization, built upon the concepts and theories on industrial networks (Powell 1990; Castells 1996; Castells 2001), which were developed in research on regional development and often associated with networking of business firms and service providers with geographical clustering.

In the first decade of the 21st century the significance of networks in economic activity was reaffirmed with new models of internet-enabled collaboration, triggered by phenomena such as the production and distribution of open source software and the creation of information resources, such as Wikipedia. The literature on web 2.0 celebrates the internet for the power it affords to individual initiative to create new models of delivering services that depart from the proprietary logic appropriate for products (O'Reilly 2005; O'Reilly 2007). A new mode of creating wealth is suggested, emphasizes individual initiative in an environment of peer to peer collaboration formed by technology platforms and services. The development and use of internet technology platforms for collaboration are seen as the triumph of individuals' agency, transcending the constraints of the major socio-economic institutions of late modernity, namely the state and the corporation (Benkler 2006).

Scholars and activists on ICT and development were quick to note the developmental potential of the new form of networking that utilizes the internet and the multiple information processing tools and services it is giving rise to. Its intrinsically centre-less organization form is heralded for empowering individuals to participate creatively in collaborative initiatives, often of a global scale, bypassing dysfunctional local institutions and entrenched structures of power that hinder economic growth and the

development of democratic polity in many developing countries. Concepts such as 'development 2.0' and 'ICT4D 2.0' were coined to attract attention to the salient features of networking enabled by internet platforms that open opportunities for development, such as 'technology-enabled social life comprising diversity, collaboration, and multiple truths' (Thompson 2008), and 'designs around the poor's specific resources, capacities, and demands' (Heeks 2008, p.32).

Yet, the way the new possibilities of networking contribute to economic development is poorly understood. Particularly lacking in the current discourse on internet-enabled economic activity is attention to social embeddedness. To address this knowledge gap, in this article we examine the relevance of theoretical propositions of social embeddedness developed in the research on industrial networks for contemporary cases of regional economic initiatives that utilize internet platforms and business services and collaboration. We draw data from two cases of regional networks of SMEs in China which resulted from entrepreneurial initiatives intended to exploit the potential of internet platforms and which are sustained through internet social collaboration tools and services. We refer to the entrepreneurs that we studied as 'netrepreneurs', a term that we found widely used in China and has been already in existence in the international literature without nevertheless a clear definition (Lowery, Jackson et al. 1998). In Wikipedia netrepreneur is defined as 'an entrepreneur that applies innovation to create new businesses on the Internet'. Indicative of the ambiguous and flux state of terminology is that two terms are used to describe such actors, 'netpreneur' and 'netrepreneur'. We opted for the latter as it is more widely adopted and acknowledged.

Our paper is structured as follows: In the next section we outline the theoretical arguments on the significance of social embeddedness in economic activity that were formed in studies of industrial networks and draw working assumptions on the articulation of individual entrepreneurial agency and contextual enablers. Then we present two case studies of clusters of internet based entrepreneurial activity in two Chinese regions. Our narrative focuses on and unfolds around individual entrepreneurs, tracing their business partners, service providers, and supporting institutions. In the analysis section we identify the internet enabled features of the networked economic activity of the cases and their institutional bearings. Finally, in

the discussion and conclusions section we draw tentative suggestions about the socio-economic conditions of possibility for business networks operating on internet platforms.

In a nutshell, our study provides evidence of effective mobilization of resources through internet based platforms of business services by the poor to create modest incomes through electronic commerce. The Chinese business activities of the entrepreneurs we studied are strongly embedded in social structures; they utilise the enabling internet platforms collaboratively within their local community, and rely on government support and the services of a giant corporation. In these two cases at least, the internet-enabled route to economic development does not break free from, but relies on local community ties, the government, and corporate services.

Networks and economic development

Attention to internet-enabled economic activity is not new, and so far it has led to diverse views of its significance, constituent components, and distinctive nature. Among others, internet-based economic activity has been associated with the emergence of the network form as an alternative to markets and hierarchies (Malone, Yates et al. 1987), inter-organizational virtual collaboration (Jarvenpaa, Shaw et al. 2004), and voluntaristic forms of production (Benkler 2006). We still have to develop a clear understanding of the implication of possibilities of virtuality in the organization of production, in commerce, employment, and growth. In the literature of development studies the internet and mobile technologies have been heralded for overcoming information asymmetries, thus allowing the poor the benefits of local markets free from the distortions of intermediaries (Best and Maclay 2002), for tapping the potential of remote markets (Davis 2004), and for joining global supply chains. But, contradictory research findings cast doubt about the validity of assessments of the developmental potential of the internet (see for example Hassanin 2008) that are drawn on the basis of neo-classical economic logic that considers the internet as a mechanism that addresses market failures, and on the basis of purely technical/rational business models. Early enthusiasm about the potential of the internet to contribute to the connection of poor communities in developing countries with the global economy, accompanied with interventions to overcome the

debilitating digital divide, proved largely misplaced. Successful exemplars of internet based economic development remained the exception rather than the norm. A new wave of optimism about the way the phenomenal diffusion of mobile technologies may be boosting economic growth in poor regions of the world has still to be verified with empirical research and explained theoretically.

One way to develop a theoretical understanding of the way the internet may be contributing to the improvement of economic conditions in poor regions is to examine internet-enabled economic activity from the perspective of business networks. Prominent within the literature of this topic is the work of Castells, who argued at length about the merits of the networked economy that is enabled by the internet, and positioned it within the post-industrial socio-economic logic. He illustrated via multiple examples that globe-wide networking was already under way (Castells 1996). Castells' notion of networked economic activity encompassed the institutional embeddedness of collaborating individuals and firms (Castells 2001). In taking this perspective, Castells' analyses are linked with a well established stream of research on industrial and post-industrial socio-economic analysis, which sought to explain business and entrepreneurial activity in terms of collective economic rationality with institutional bearings. Such institutional bearings have historically been formed in geographic concentrations of business firms, and a great deal of research on entrepreneurship is concerned with the regional and spatial characteristics that enable and sustain it (Uzzi 1997; Rocha 2004; Feldman and Francis 2005).

The question why enterprises tend to form networks, often clustered in proximate places, has been studied for over a century. Three basic types of industrial networks have been highlighted in such research, each sustained by its own socio-economic structures. The first type is the 'Marshallian' district, which is a concentration of a large number of related industries in proximate places, in order to maximize sales and minimize the cost of production (Asheim 2000). In this type, enterprises tend to locate close to the biggest target market, in order to save transportation costs. They also cluster together to benefit from proximity to labour markets, economies of scale, the degree of division of labour and specialisation between enterprises, and knowledge and skill spillover possibilities.

The second type is the so-called ‘new industrial district’, which is an industrial region of small and medium-sized enterprises (SMEs), collaborating with each other and specialising in market niches. The main feature of such industrial districts is its collective flexibility. Because SMEs are specialising in different areas of production with different skills, the industrial district has the flexibility to re-organize its production and cope with market uncertainties. Thus the new industrial district type was seen to be the answer to the crisis of mass production industrial organization (Piore and Sabel 1984; Cooke and Morgan 1994). This type of district has attracted a great deal of attention from development scholars and international development NGOs, and led to policies that facilitated the formation of networks of SMEs in many developing countries (Nadvi and Schmitz 1994).

With the rise of technology and knowledge-intensive industries, industrial network studies identified a third type of network concerning industries for which knowledge is the main factor of production (Saxenian 1994). Such industrial networks achieve “increasing returns” on knowledge for enterprises producing knowledge-intensive high technology products and thus requiring innovation capability. The mechanisms that attract enterprises to networks, which are often located in the same place, are mainly knowledge spillover effects and flows of human capital. The literature of national system of innovation (Lundvall 1992) and regional systems of innovations (Asheim and Gertler 2005) emphasizes the importance of having knowledge institutions, such as universities, research labs, and innovative enterprises in the same regions, in order to facilitate the knowledge flows. Within the knowledge focused industrial regions, inter-firm collaborative relations aim at sharing cost, sharing knowledge and spreading the risks of innovations.

There has been a long debate in the literature of the industrial networks about the non-economic factors that are affecting the dynamics of industrial clustering. Alfred Marshall, in his pioneering study of industrial agglomeration (1895), briefly mentioned the non-economic social factors (such as trust) within agglomerations that are conducive for enterprises to locate in similar locations, but generally interpreted these factors as ‘external economies’ which did not merit further exploration by an economist. Later neoclassical economics generally chose to ignore the non-economic sides of industrial cluster and specifically focused on the geography-specific

organizing logic of economic resources - material and immaterial – and formal contract-based inter-firm relations (vertical integration and horizontal competition). This changed when economic geographers began to pay attention to the phenomenal success of Third Italy Regions where groupings of SMEs based on similar regions display high level of collective competitiveness. This strand of research found that factors such as social-community, history and culture play important roles in the development of industrial clusters. Becattini (1991) found that the Italian industrial regions are communities of people and populations of firms in naturally and historically bounded areas. Within these communities systems of values and rules acting as the glue that holds people and firms together in a region, and facilitates the trust and cooperation mechanisms which effectively reduce risk and improve learning activities. For instance, the studies of Italy's Emillia-Romagna regions have shown the influence of the strong socialist values that give rise to various associations and cooperatives in the region (Cooke and Morgan 1994). The message that comes out of this research loud and clear is that social community, history and culture are important in the development of industrial networks. In other words, industrial networks are socially embedded.

The fundamental theoretical underpinnings of the significance of social embeddedness in the economic success of clustered business networks have gradually been elaborated by organizational theorists and economic sociologists (Granovetter 1973; Granovetter 1985; Powell 1990; Burt 1992; Uzzi 1997; Podolny and Page 1998; Nooteboom 2006). It has been argued that, while in terms of efficiency, scale/scope economies and other economic factors such as transaction cost, modern business corporations structured as hierarchies of command and control have advantages of resource allocation and administrative capabilities over smaller firms (Young 1928; Coase 1937; Richardson 1972; Teece, Pisano et al. 1997; Penrose and Pitelis 2009), geographically clustered networks of smaller firms have strong competitive advantages and manage not only to survive in the competition with large corporations but also to present an important new 'way of thinking' for industrial development. Industrial clusters thrive because they form complex networks of socio-economic relations and are rich in 'social capital'. According to Coleman (1988), the concept of social capital refers to the reciprocal, trust-based exchange of resources based on reputation, traditional or communally established form. The starting point of

the social capital concept poses a challenge to the traditional view of economic relations as either arm's-length relations of market transactions or contract-based administrative relations. The underlying assumptions of social capital for industrial clusters reflect a longstanding theoretical polarization of between 'arm's length exchange' relations assumed by neoclassical economics and the collective communal/cultural relations emphasized by the sociology of economic action (Granovetter, Swedberg et al. 1992). While the 'under-socialized' neoclassic assumptions have been extensively exploited in the economic analyses of industrial clusters, the 'socialized account of economic relations', arguing that 'economic agents' in the industrial cluster are profoundly social in their economic thought and action, has been well recognized in recent decades (Granovetter 1973; Granovetter, Swedberg et al. 1992). In terms of social capital, economic agents (individuals and firms) in clusters are constructively weaving a network of 'trust' and 'reciprocity', which can be transformed into collective market advantage and innovation capabilities.

For example, Uzzi's (1997) study of arm's-length ties and embedded ties in industrial networks suggests that by sustaining embedded relationships industrial networks effectively regulate the expectations and behaviours of exchange partners via three mechanisms: trust, transfer of fine-grained information that constitutes tacit knowledge, and joint problem solving arrangements. Importantly, Uzzi points out that too much embeddedness may reduce a firm's ability to adapt in face of competitiveness and innovation occurring beyond the closely knit industrial network. Isomorphic influences may create dysfunctional decrease of diversity. And some networks become vulnerable from their reliance on a few players who may seize to exist, or stop being helpful to their partners.

We know little about the social embeddedness of contemporary internet-based networking, despite current emphasis on collective intelligence, crowdsourcing, peer-to-peer collaboration and online networking. The web 2.0 network concept is technology driven and places emphasis on the individual. Part of the discourse emphasizes the liberating effect of collaborating through these technologies from restricting institutions, such as intellectual property rights, and has an anti-business-for-profit flavour (Benkler 2006). Another part of the discourse heralds new business

creation and entrepreneurial opportunities through networking, suggesting a range of opportunities for start-ups. Corporations are encouraged to leverage employee collaboration and establish new ways to connect to their markets and collect intelligence from customers and the public at large as internet user (Brown 2010).

The actors involved in internet-enabled peer-to-peer activities tend to be portrayed as disembedded individuals, and their involvement in production activities is presented as disassociated from any institutional structures. To some extent this is what advocates of web2.0 see as the source of its developmental potential: internet based platforms of collaboration allow individuals to participate in networks of sustained economic or political action, such as the production of information goods and mobilization for common causes, bypassing the restrictions of dysfunctional institutions and the lack of infrastructure (such as transport, banking, etc), characterising developing countries.

Nevertheless, two questions beg attention in relation to the theory of social embeddedness of economic activity formed from the study of industrial networks: a) what makes geographic clustering still relevant for internet-based industrial networks? b) to what extent do internet-based industrial networks break free from the major institutional forms of modernity, namely government and corporations? In the following case studies we will examine the extent to which social embeddedness is manifested in internet-enabled industrial networking and the form it takes. We seek to understand the economic logic that sustains the business activities of the internet-enabled individual entrepreneurs and what kind of network (i.e. the individuals, organizations, and institutions they interrelate with) they form and rely upon. The overarching working hypothesis is that the internet-enabled entrepreneurial activities are both geographically embedded and virtually embedded in social context. Geographical embeddedness refers to the situation that entrepreneurs are enabled, supported, and restrained by local institutional structures – a systematic logic of social, economic and cultural actions by being local, while the virtual embeddedness refers to the situation that entrepreneurs are immersed into, and enabled by the internet-based virtual social communities existing only in digital space.

Netrepreneurs of Yiwu

Yiwu City has a population of about 1.2 million and is located in central Zhejiang Province, about 100 km south of the provincial capital, Hangzhou. Lin, now in her early thirties, is an entrepreneur based in Yiwu. She was born in the city, but left Yiwu after secondary school to study in Shanghai and developed an interest in health food, natural ingredients and substances used in traditional medicine and cosmetics. She did some research on recipes and manufactures of products from natural ingredients, particularly cosmetics, and she located a source of such products in Thailand. Then she had the idea of setting up an online shop to sell such products and she came back to Yiwu to develop her business. She solicited the help of a professional graphic designer to set up her site on Taobao and started trading.

She has been running her Taobao based shop from her sparsely furnished one bedroom flat in Yiwu for more than three years, employing an assistant and relying on the help of her boyfriend. She rents storage space for the goods she sells in the basement of the same block of flats (approx. 100 sq.m). The bulk of her trade is currently cosmetics, while she is continuously exploring other product lines – currently she is testing a brand of instant coffee blend from Sumatra which she believes has good prospects in the Chinese market.

Lin maintains contact with her customers through Taobao communication tools, mainly the instant messaging and chat services. Customers (particularly prospective customers) may also contact her via email. She uses AliPay, a Taobao service to handle the credit card and bank payments she receives from her customers. AliPay acts as the guarantor of payments and does not release them to sellers until buyers confirm receipt of the goods they ordered. On the marketing side, she can make use of a sophisticated array of online visibility, promotion, and reputation tools to promote her online Taobao shop. She pays Taobao a fee to have advertisements displayed to Taobao visitors who search for products similar to the ones she is selling. Advertising space in Taobao is auctioned to netpreuners who also need to demonstrate a certain level of commercial activity in order to keep it.

Her reputation in Taobao is critical for attracting customers. Taobao has 450 million products on sale and 70 million registered users (sellers) and runs a customer rating

service for online shops based on a number of criteria, such as whether the netrepreneur pays a fee (multiple fees available), whether the site occupies un-auctioned keywords (popular keywords are auctioned in Taobao; price paid determines the order of appearance in a customer search), and whether the netrepreneurs make frequent edits (updates) to their page. Building a reputation in Taobao has developed into a professional service in its own right. The streets of Yiwu are littered with makeshift noticeboards displaying hundreds of handwritten notices from people who offer to help netrepreneurs improve their online reputation.

Doing online business in Yiwu

Lin, as all other people we interviewed in Yiwu, places emphasis on the 'commercial culture' in this area. This culture currently seems to play an important role in providing the conditions in which a network of services necessary for Yiwu's netrepreneurs is spawned. While Lin receives orders for goods online and Taobao acts as a trusted intermediary for the financial part of the transaction, she makes use of a number of additional services available in Yiwu to fulfil customer orders.

For example, she buys packaging materials from the many small businesses specializing on this in Yiwu. The owner of one of these shops explained to us that hers is a third generation family business which traditionally served local manufacturers' packaging needs. They have now shifted their attention towards serving netrepreneurs. She has expanded the selection of sizes and specifications in the carton boxes she sells (down to packages no bigger than a box of matches), and introduced materials suitable for mail order dispatches. Local netrepreneurs may pick up their orders in person, while she also offers dispatch service on bicycle. Usually netrepreneur orders for packaging materials are more frequent and lower volume compared to those of manufactures and she has adjusted the services she offers accordingly.

In the same vein, netrepreneurs like Lin have an ample selection of postal service companies to choose from. These small businesses have appeared, multiplied and grown in tandem with the number of netrepreneurs active in the city. Many of them offer only local delivery service on their own, and collaborate with larger post and

logistics service providers to deliver goods to distant destinations. Similar to packaging material providers, postal service companies have tailored their services to the needs of netrepreneurs' logistics. Many of these small businesses have only netrepreneurs as their customers.

The netrepreneurs of Yiwu find most of the merchandise they sell in a massive compound at the edge of the city that is host to more than sixteen thousand wholesale businesses selling all manner of consumer goods from cutlery to ornaments, from fabrics to toys, and from equipment to alimentary products. This wholesale market, one of the largest commodity markets of China, has been there for a long time, well established in both national and international trade – Arabian and Russian (not English though) feature widely in local restaurant menus.

Many of the Yiwu netrepreneurs were trained in a local college which specializes in business and commerce education, offering courses and specializations on all topics that would normally comprise a business administration curriculum, including a sizeable portfolio of business computing topics. The college offers extensive training options on netpeneurship skills including hands on experience on AliBaba and Taobao platforms. In essence, young locals may start as students and graduate as netrepreneurs with their own start-up running.

Students are encouraged to look for potential products to sell both on- and off-line. In many cases, products sold on students' Taobao-based retail sites come from merchants selling wholesale on AliBaba's platform. These businesses, while not willing or capable to set up an online retail operation themselves, welcome the opportunity to have one maintained by independent netrepreneurs such as Yiwu College students. In the case of consumer goods ordered online from AliBaba's wholesale shops, AliBaba logistics deliver the goods to the College's premises.

At present, everything in this community of entrepreneurs is in small monetary numbers: the value of stock, the prices of products traded, the cost of services, the earnings. Yet, the unambiguous message emerging from our interviewees was that this secures their livelihood and has prospects for growth.

The network of furniture makers at Dongfeng

The village of Dongfeng is located in the northern part of Jiangsu Province and has about 1,200 households. Supervised by the township government of Shaji, Dongfeng is a typical Chinese peasant community, with the majority of the population traditionally engaging in agriculture related production, such as growing rice crops, raising and herding cattle. Jiangsu Province is the most affluent in China, but it has a regional economic divide. The southern part of the province has the country's most dynamic industrial clusters bordering Shanghai and Zhejiang Province – the so-called Sunan industrial district of the Changjiang-River-Delta Economic Zone (CRDEZ)[1], while the northern part historically lacks strong economic connections with the south and is lagging behind in terms of industrialization. For many young people of the northern villages migrating to the southern cities to find employment in factories seems a more reasonable choice than staying home and growing their crops.

In 2008 several farmers of the village started producing and selling over the internet wooden furniture. Since then over three hundred Taobao-registered 'net-shops' have been created in the village. And while it is not uncommon to find net-shops selling agricultural products on Taobao operated by peasants from rural villages, what is of interest in this case is that the netrepreneurs of this village used the Taobao platform to enter the ready-to-assemble furniture business and collectively achieved a sizable manufacturing and trading capability. According to a local government official in Shaji, in 2010 the overall annual revenue of furniture-making net-shops of the town amounted to over 50 million CNY (around 8 million US dollars).

A key person in the success story of Tongfeng is Sun Han, a young man who started the first ready-to-assemble furniture business in the village in 2007. He had spent a couple of years at a mobile phones company in a city near the village, during which, aspiring as millions of other young Chinese to make a success of himself in the dynamism of China's capitalist economy, he developed the idea for a business such as the Swedish IKEA, making and selling ready-to-assemble wooden furniture, but adapted for the Chinese market in terms of price and style. Such furniture

[1] CRDEZ, alias Yangzi-River Delta, together with Pearl-River-Delta, is widely considered as China's major economic engines, accounting for the majority of Chinese industrial production and export.

manufacturing could be sourced from local wood production and be sold over the internet through a Taobao shop. To have a large enough range of products and create a brand and reputation he needed a critical mass of production, which he sought to achieve my motivating other families of the village to run workshops making furniture kits. In 2009 Sun Han's business had a turnover of three million CNY, making him the most successful Taobao netrepreneur in the region of the Shaji township.

Many others followed Sun Han's example and set up ready-to-assemble workshops and Taobao shops. Most of them are young men and women between 20 – 30 year old and modest level of education and some of them, like Sun Han, had spent time in cities as migrant workers. Persuaded that making simple furniture parts, packaging and selling them over Taobao was a viable business, they committed themselves to Sun Han's vision. They were trained, partly formally and, more importantly, by working close to Sun Han, who was open about his techniques of organizing his workshop and managing the net-shop.

The netrepreneurs of Dongfeng make use of the full range of e-commerce services of Taobao, outlined in the Yiwu case. In addition, the creation of this industrial network owes a lot to local government support. Since the introduction of the market economy in the 1980s and following central government policy, the local government had encouraged private entrepreneurship. Prior to specialising in furniture making the village had tried a number of other businesses, such as noodle making, pig and poultry farming, plastic material manufacturing. Therefore there was already a certain culture of entrepreneurship in the area, and this, Sun Han told us, had influenced him to want to make his own enterprise. In recognition of his success, his company was appointed by the government of a neighbouring town as the "training centre for young entrepreneurs". We understood that such official government blessing was an important factor for success in the Chinese market.

The communist party secretary of the village was manager of the Shaji Town Industrial Group before he got his Dongfeng government post. He considered himself a businessman, and told us proudly how he helped Sun Han to get a loan from the local Bank and launch his business. He introduced another company based in Shaji,

the Qiangshen Plastics Group, as guarantor for Sun Han's application for a business loan. Also, both him and the party secretary of the government of Shaji told us that they persuaded Sun Han to share his knowledge and skills with others in the village in order to develop a range of products and critical mass of business and thus achieve collective competitive advantage in the ready-to-assemble furniture market. They continued see their role as fostering e-commerce by improving mutual trust among the entrepreneus and between entrepreneurs and the banks or other institutions. They were in close contact with the SME owners and, at the time of our visit, they were preoccupied with finding a way to reduce negative effects of internal competition. They were planning to establish a "Furniture E-business Association" to set up rules and procedures for local business collaboration, thus regulating locally quality standards, prices, and brand management. The local government was also interested in helping to raise investment for a large-scale manufacturing plant to produce high quality furniture material that would subsequently improve quality of products of the SME netrepreneurs. It seemed to us that such initiatives were welcome by the SMEs. The smaller netrepreneurs we spoke to were apprehensive about increasing competition and falling profit margins and uncertain about their future. They expected the government to oversee the village's industrial venture and act to secure its success.

Analysis

In the entrepreneurial businesses that we studied, the internet is the platform[2] for doing business. The whole spectrum of business activities is structured by the services provided by the Taobao platform. The netrepreneurs are heavily relying on front-end tools for interaction with their customers, marketing purposes and back-office support. The experience of doing business for the Yiwu and the Dongfeng netrepreneurs is shaped by the technology tools provided by the platform. It is a shortcut to acquiring relevant skills and competences.

[2] The 'network as a platform' to achieve new business models is frequently used expression in web2.0 literature, see O'Reilly, T. "What is Web2.0: Design patterns and business models for the next generation of software" *Communications and Strategy* (65:1st quarter) 2007, pp 17-37.

Customer communication tools, such as messaging, email, VoIP, are integrated with the transactional side of the customer relation. During our interviews in their business places the netrepreneurs repeatedly interrupted our conversations to deal with a continuous flow of customer queries on delivery details, features of products and price negotiations. Research on e-commerce service providers in China confirms the significance of this functionality of the Taobao platform. The capacities provided for communication with the customer and negotiation, and the heavy use made of these services has been a major advantage of the Taobao platform compared to eBay, its main competitor from 2003 till 2006 (Chen, Zhang et al. 2007; Li and Li 2008; Ou and Devison 2009).

The importance of Taobao in the creation of the micro-entrepreneurs of Yiwy and the SMEs of Dongfeng cannot be overemphasized. Not only it provides a range of services for conducting C2C and B2C e-commerce, such as a rating mechanism, advertising, financial transactions, but it organizes and sponsors online and off line community building activities (Chen, Zhang et al. 2007). We found manifestations of the community building activities of Taobao in the e-business association and the college of Yiwu.

The e-business association was originally a self-organized body, set up by local netrepreneurs, but currently Taobao has taken over its development, administration, regulation and governance. Lin is an active, founding member of the Yiwu e-business association. Joining the association means getting access to producers and products, but also to a social network of local netrepreneurs and through them to expertise on a range of netrepreneurship related skills and experience. Lin maintains an array of on and off-line connections with other local netrepreneurs through meetings, the organization of counselling sessions and seminars, as well as the participation in discussion boards, online communities and blogs, all hosted within the Taobao infrastructure. Indicatively, her business card features the e-business association logo.

Taobao supports the e-commerce Yiwu College and maintains regular contact with the teachers. It has given an official vote of approval to their training courses, and named the College the ‘top college in terms of good value for their offering’. Appreciation is mutual; the college principal that we interviewed relayed the teachers’

view that Taobao offers a 'good platform for training students'. The picture of the entrepreneur par excellence, Taobao and AliBaba creator, Jack Ma on the walls of the local college serves as a constant reminder of the aims as well as the potential of such entrepreneurial activity.

Overall, Taobao as a social networking platform constructs a netrepreneur identity, creates a sense of belonging, promotes role models and values associated with success, and cultivates desirable netrepreneurs profiles by prizes and publicity for particularly successful netrepreneurs.

Spatial and institutional embeddedness of the netrepreneurs

Netrepreneurs in Yiwu and Dongfeng are co-located with a range of businesses providing services to them (Ding 2009). Several logistics and postal and packaging services compete for their custom. Freelance designers emerge to provide help with the set-up of the interface of the netrepreneurs sites and improvement of the online rating of their business. In Yiwu the commodity market offers unlimited sourcing opportunities for merchandise to be re-sold electronically. In addition to this huge market, corner shops and minimarkets sell products that netrepreneurs re-sell electronically so that they do not need to maintain their own inventories. The knowledge spill-over effect of the college is also important. The college provides a large number of internet savvy and entrepreneurially inclined young people, acting as an incubator for netrepreneurs as many of which emerge from their studies with their own business up and running.

Perhaps more importantly, the netrepreneurs of Yiwu are a continuation of a culture of commerce that has old historical roots, survived the Maoist regime and revived in the era of the country's economic liberalization. Moreover, the Yiwu case is not an exception in contemporary China. On the contrary, it is part of an energetic capitalist development which celebrates private initiative and the creation of wealth. This is sustained by an attitude of consumerism in the country which creates demand for all manner of products, thus providing ample opportunity for intermediary traders, such as the netrepreneurs of our case (Cui and Liu 2001; Li 2010).

An actor of crucial importance in the case of the Dongfeng furniture makers is the government. It is well known that government is a key player in large corporations of the Chinese economy. We found government to be deeply involved in micro-entrepreneurial activity as well. The role of the government is both functional and symbolic. Functionally, government leaders are constantly engaged with the overall management of the industrial network, attracting new entrants by encouraging farmers to take entrepreneurial risk, facilitating investment, mediating the formation of governance mechanisms. Symbolically, government support of the initiative provided legitimacy to entrepreneurial risk taking and signified the turning from agriculture to manufacturing and trade as social progress.

Discussion and conclusions

In the cases of Yiwu and Dongfeng, entrepreneurs, internet technologies, services and ideas – the ingredients of web2.0 - coalesce to create income for the poor in developing regions. Our objective in this research was to understand the social embeddedness of such business activity and the conditions that make it possible for individuals to launch and sustain a business on an internet platform.

In the cases we studied the internet is indeed a central actor for networked entrepreneurial activity. It provides an accessible (both financially and in terms of easiness of use) communication medium and is the source of multiple tools for running an enterprise. The software and information that the netrepreneurs use to run their business are provided as a service, and mostly free of charge or at a very low fee, not as purchased products. But what is the industrial model that makes it possible for individuals with no capital resources and minimal training to engage in manufacturing and commerce and generate an income. Why is geography still relevant, and what are the main institutional bearing that hold the networks together?

There is a spatial specificity in both cases. What attracted the actors we studied to their community of origin is the social fabric that provides conditions facilitating business in the way suggested by Uzzi's analysis of social embeddedness: by trust, transfer of tacit knowledge in a closely collaborating business community, and by

assisting in problem solving. In Yiwu a major enabler of the collective economic activity is the culture of commerce that survived the strict state economy and revived within the market economy of the last three decades; in Dongfeng it is the government that acts as facilitator for small businesses and the overall development of their industrial network. Both cases rely heavily on Taobao, for the development of generic electronic business skills and for cultivating values of the competitive game of the market and of social networking for business success.

All of these confirm the pattern of geographically co-located industrial network known from earlier research of the empirical experiences of pre-internet business networks. Nevertheless, Yiwu and Dongfeng differ in one significant way from the traditional geographically located industrial networks. One major actor, the business service provider is remote, providing all its services electronically. All trade is conducted electronically too, trust with customers and reputation are developed through electronic communication. Thus, the main difference from the industrial districts identified in the literature is that important parts of their business relations are virtual. The community they belong to is only partly local, created by spatial co-presence. It is to a large extent virtual, maintained by the geographically remote, yet ubiquitous, corporate actor of Taobao. In effect, both cases are a mix of co-located and virtual relationships of production and trade exchanges.

Despite the strong element of virtuality, this is not a libertarian model of individuals exploiting the business making potential of internet technologies solely on their own ingenuity. As our case description and analysis show, the netrepreneurs of Yiwu and Dongfeng rely heavily on the services of a corporate service provider. The netpreneurs of Yiwu are supported by off line collaboration in a tradition of risk taking in trade and a culture of sharing. The netrepreneurs of Dongfeng rely heavily on the government to provide legitimacy and guarantees of trustworthiness, to facilitate access to finance, and to steer strategies of competition for the industrial network.

Our research does not disprove claims for the capacity of web2.0 platforms to empower individuals to break free from corporate structures, and local community and government support. Limited as it is to two clustered industrial networks, it

cannot draw conclusions about the possibility of other forms of industrial networks. The heroic individual entrepreneur who exploits the potential of the internet and the business facilities available through the cyberspace remains a possibility, as they have always been and studied in the literature of entrepreneurship. Further research is required to explore forms of social embeddedness in virtual networks where actors are not geographically co-located and do not rely on the conventional institutional actors of corporations and governments.

Also, our research, while addressed the question of how industrial networks of entrepreneurs are formed in developing regions at the age of the internet, it does not answer the question whether and under what conditions they are sustainable. We are interested in pursuing longitudinal in these too cases to see how they develop. There is a risk of too much embeddedness, as the netrepreneurs rely heavily on powerful actors. In the case of Dongfeng, reliance on the government may breed complacency and corruption. In both cases, reliance on Taobao may have undesirable lock-in effects.

In short, this limited research exercise confirms existing theoretical propositions of the role of social embeddedness in the creation of SME industrial networks, although it indicates that geographic clustering may be loosen through virtual relationships with service providers and customers. Moreover, our research shows that while the internet based business platforms and services make it possible for poor and modestly educated people in developing regions to embark on entrepreneurial activity, the fundamental institutional bearings of economic activity of modernity, the government and the corporation, are clearly present. We thus conclude that the internet does bear developmental potential, it is becoming increasingly accessible, and can be creatively exploited through human agency directed to the improvement of life conditions, as the Yiwu and Dongfeng netrepreneurs do. But to think about developmental transformation as the encounter of poor people with the internet is a misleading abstraction, hiding crucial infrastructure conditions and shifting attention away from institutional actors that continue to play important roles for the elimination of poverty.

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