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Is that Innovation?

Assessing Examples of Revitalized
Economic Dynamics among Clusters of
Small Producers in Northern Vietnam

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Abstract

This paper addresses the question whether innovation is within reach for small enterprises in developing economies by studying four cases of new technologies, products and business practices in traditional craft in Northern Vietnam. The paper starts with reviewing definitions of innovation since Schumpeter. It concludes that newness, value creation and process are time and again considered as the key-elements of innovation. Innovation, hence, may be summarized as the process of introducing something new that creates value. Subsequently, this theoretical definition is operationalized into an innovation assessment instrument and applied in the aforementioned cases. The instrument verified the occurrence of innovation in three out of four cases of small producers' clusters in Northern Vietnam. The entrepreneurs...../

Keywords: innovation, small enterprises, clusters, value chains, Vietnam

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managed to implement innovation on their own strength and upon their own initiative. This provides evidence that small enterprises in developing countries are indeed able to take part in the process of increasing competitiveness through innovation.

Abbreviations

GRET	Groupe de recherche et d'échanges technologiques
R&D	Research and Development
TBF	The Bamboo Factory

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1 Introduction

Why has Europe placed such importance on innovation? 'Because it is the key to our continued competitiveness', says EU commission's President Barroso. 'To maintain a high quality of life, we must maintain our economies' competitiveness. Innovation is the best way to do this' (EU commission website, December 2006).

'America's economy leads the world because our system of private enterprise rewards innovation. Entrepreneurs, scientists, and skilled workers create and apply the technologies that are changing our world. The US government must work to help create a new generation of American innovation and an atmosphere where innovation thrives' (White House website, December 2006).

'Brazil adopts innovation law. The Brazilian president Luiz Inácio da Silva removed legal barriers to stimulate innovation. The innovation law highlights the government's view that science and technology play an important role in Brazil's economy and development. This is an important step to participate competitively on the international market' (Fernanda Veneu, 20 December 2004. Source: SciDev.Net).

Many politicians, economic actors, and economists consider innovation as the key to achieving competitiveness in today's globalized world, as illustrated by the quotes from the EU Commission's President Barroso, the US White House's website and about Brazilian President Luiz Inácio da Silva. Although this viewpoint is generally accepted in economic circles, the question remains as to whether innovation is evident for any firm in any economic reality. Is innovation within reach and can it be pursued by small, medium, as well as large firms, in developed and developing economies?

In current debates about globalization and competitiveness, innovation is often represented as providing opportunities and conditions for developing countries to participate in the world economy. Innovation is seen as a potential way in which low income countries can strengthen their firms' competitive position within global value chains (Gereffi et al. 2005; Kaplinsky 2000). Schmitz (1999) specifically refers to cases of clusters of small businesses in less developed countries that 'have broken into international markets'. Was this achievement the result of innovation?

Others do not consider innovation evident for small producers in the informal sector in low income countries to increase competitiveness and assume that these producers will only play a limited role in formal economies, international markets, and globalization. Lewis's dual sector model of development (1954) included the 'trickle down' theory that assumes economic growth and technology to flow down from the wealthy at the top to the poor at the bottom. The appropriate technology approach (Schumacher 1973) urged western development agencies to design simple technologies that would help poor small producers in low income countries to step out of their poverty. The indigenous knowledge approach takes the position that local knowledge and local markets should be tapped into. None of these approaches take local capacity for innovation into account as part of the reality of small producers in developing countries. Rather they see such

producers as being locked into patterns of traditional and indigenous ways of production. Even today, the Global Competitiveness Report 2006–07 reflects a similar view: innovation is something that is only significantly undertaken once a country has reached a considerable level of economic advancement. According to the report, innovation is not a particularly relevant, important, or useful activity for the great majority of firms in low and medium income countries (Caniëls and Romijn 2007).

This study questions this assumption and analyses examples suggesting that innovation is a potential avenue for small producers within low income countries. For instance in northern Vietnam, several clusters of small producers engaged in traditional crafts have introduced new technologies, new products, and applied new business practices in recent years, expanding their sales on domestic and international markets. Conventional economic thought might have assumed that such traditional crafts will eventually disappear as a result of the modernization of these countries' economies, based on the belief that traditional production technologies are conventional and backward and not suited to global market conditions. However, the Vietnamese examples suggest otherwise and are the basis for further exploration of the extent to which these successes are the result of innovation and whether this has any broader implications?

If these examples from Vietnam are indeed innovation this would provide additional support for further researching the potential role of innovation in poor communities. To do so, it is informative to review the types of innovation, their features, similarities, organization, and how they emerge. Such insights can provide the basis for further theory building on the manifestation and significance of innovation within low income countries and for alleviating poverty against theoretical concepts about innovation and economic growth.

However, before doing so, there is methodological challenge that first needs addressing: how do we know whether something actually is an innovation? In economic theory today innovation is a very broad concept, largely defined in terms of western economies. Many of those involved in studying innovation interpret its meaning in different ways. Moreover, the term innovation is not value free: innovation is 'hot' and virtually all social actors in western economies today, whether they be firms, public services or educational institutions, claim to be 'innovative'. Does contemporary economic theory, with its existing concepts and definitions provide a suitable instrument for assessing innovation in clusters of small producers in developing countries? In this sense also the analysis of innovation in Vietnam can also provide useful insights for defining and assessing innovation.

The first part of this paper explores the definitions of innovation in the economic theory and advances an operational definition of innovation. This section draws on a study of literature on innovation in economic theory and reviewing definitions from different schools of thought in the past century. The second, empirical, part uses qualitative case study methods to assess whether the Vietnamese examples of small producers' clusters does embody innovation. The paper concludes with a discussion of the outcomes, theoretical implications and an agenda for further research.

2 Defining innovation: the theoretical framework

2.1 Defining innovation

Several authors have addressed the issue of defining innovation (Read 2000; Rogers 1998; Szmytkowski 2005; Tether 2003), although most acknowledge that defining innovation precisely is problematic. The difficulty is that innovation is an activity that is more complex than it first appears: 'it is a serious mistake to treat an innovation as if it were a well-defined homogeneous thing that could be identified as entering the economy at a precise date' (Kline and Rosenberg 1986). Despite much research into innovation in many fields, no single discipline has succeeded in uniting the fragmented thinking into one consistent umbrella theory, providing commonly agreed definitions and theoretical concepts.

How has innovation been defined in economic theory so far? Several literature overviews on innovation in the past decade (Brusconi et al. 2006; Fagerberg 2004; Freeman 1994) show that there is no single agreement over how to define innovation. Read (2000) recommends that each researcher should define a conceptual approach, so as to avoid confusion over how they understand innovation. Scholars have proposed a variety of different definitions of innovation, although many of these contain similar elements, which are worth comparing to draw out their similarities and differences.

Most literature describing the historical evolution of innovation in economic thinking show similar chronological paths. The economic exploration of innovation started in the beginning of the 20th century when neo-classical growth theories on for instance capital accumulation and productivity (Harrod 1939; Domar (1946) and production function models of Solow (1956) and Swan (1956) were unable to explain the actual dynamics of economic growth (Amable 1994). The subsequent inclusion of innovation in economic research in the past century can be grouped into four periods:

1. Early theoretical treatments of innovation; the acknowledgement and the introduction of innovation and the entrepreneur's role as part in the economic analysis by Schumpeter (1939). His contemporary Veblen (1904) described innovation and entrepreneurial behaviour as both socially and individually determined and saw economic growth as a process of ongoing change, departing from the neo-classical rational-choice model (*homo economicus*) and the economic equilibrium assumption.
2. The development of endogenous and new growth theories (1970s–80s) further developed theoretical understanding about innovation. These saw economic growth as an evolutionary process generated from within a system as a direct result of internal processes (Romer, Dosi, Nelson, Winter, Kline and Rosenberg, Drucker).
3. The positioning of innovation in a broader interactive context of a national system of innovation, which emphasized the implications of national policy (1980s and 1990s) and (Freeman, Lundvall, Edquist)
4. The significant increase of interest in innovation within the globalization and development economics discussions, and various other schools of thought

concerned with global value chains, new competitiveness, and learning regions (mid-90s to present) (Porter, Kaplinsky, Gereffi, Stroper). In this most recent period the view of innovation as a development alternative in low income countries has gained more ground.

2.1.1 Recognizing innovation

Although classical economists such as Adam Smith acknowledged innovation as a source of economic progress, they did not consider it as an integral part of the economic process. Innovation was considered to be an exogenous variable, by nature a 'black box' (Rosenberg 1982). Thus, technical change and innovation was outside the competence of classical economists and was a domain for engineers and scientists (Freeman 1994).

Veblen (1904) was one of the first to challenge this position by stressing that the development of new technology is not an exogenous force, but rather a set of material, economic and social relationships shaped by businessmen, managers, and workers. Schumpeter (1934) incorporated and explicitly explained the term 'innovation' recognizing the direct link that exists between innovative activity and the dynamics of economic growth. He put emphasis on the innovator-entrepreneur as a dynamic driver of growth. For Schumpeter, entrepreneurship is the particular economic function responsible for introducing novelty to the system and thus driving economic change from within.

Schumpeter (1934) departed from the idea of an economic equilibrium theory and argued that innovator-entrepreneurs continuously changed the existing equilibrium by introducing newness, through the processes of either 'creative destruction' or 'creative accumulation' (Brusoni et al. 2006). Schumpeter defined innovation as 'the introduction of new or improved products, production techniques, and organization structures as well as the discovery of new markets, and the use of new input factors'.

2.1.2 New growth theory evolutionary economics, innovation process

In the second part of the 20th century it became harder for economic theory to ignore innovation, and new insights, concepts and definitions emerged in what became known as the neo-Schumpeterian tradition. The 1970s and 1980s saw an increasing recognition of the difficulties of equilibrium theories, which assumed perfectly rational agents working within a static economic context (Dosi and Nelson 1994). As an alternative, Nelson and Winter (1977, 1982) proposed that economic growth through innovation could be understood as an evolutionary process, which is the endogenous outcome of an economic system, 'not the result of forces that impinge from outside' (Romer 1994). Thus, according to these authors, innovation could be seen as the result of the internal economic dynamics of firms and markets. This 'neo-Schumpeterian' thinking sees the economy as being in a constant state of flux, with economic activities evolving in ways that are not always understood by the involved actors. This in turn led to a reassessment of the notion of rationality. In evolutionary theory the rationality of actors is 'bounded' rather than perfect.

Nelson and Winter (1977) defined innovation broadly 'as a portmanteau to cover the wide range of variegated processes by which man's technologies evolve over time'. Schumpeter had already used the word 'introduction' in his definition of innovation—implicitly referring to a process—evolutionary economists further theoretically elaborated upon innovation as a process. For example Dosi (1988) emphasized the process and learning element when defining innovation, which involved: '...the search for, and the discovery, experimentation, development, imitation, and adoption of new products, new processes and new organizational set-ups'. Many definitions of innovation emerged in this period, all similarly emphasizing the importance of the 'process' element. Drucker (1985) defined innovation 'as the process of equipping in new, improved capabilities, or increased utility'. Parker (1987) states that 'innovation covers all the activities in bringing a new product to the market'. Even today, most economic literature on innovation builds on his assumption that 'innovation is a process', an assumption that was established by evolutionary economic theory following the neo-Schumpeterian tradition (Carayannis et al. 2003; Edquist 1997; Fagerberg 2004; Lundvall 1992; Szmytkowski 2005).

2.1.3 Innovation within a national system of innovation

In the 1990s, Lundvall (1992), Freeman and Soete (1997), and Edquist (1997) argued that innovation should be analysed, not only in terms of a process of new and better techniques, but rather as a coevolutionary mechanism or system of technologies, organizations, and institutions. Lundvall (1992) and Freeman (1987) advanced the innovation system theory: 'the innovation process takes place in a network of institutions in the public and private sectors whose activities and interactions initiate, import, modify, and diffuse new technologies [innovation]'. An innovation system could be a spatial concentration of firms, including specialized suppliers of equipment, and services and customers, and associated non-market institutions such as universities, research institutes, training institutions, standard-setting bodies, local trade associations, regulatory agencies, technology transfer agencies, business associations, and relevant government agencies and departments. Research in the field of economic geography further developed learning dimension of the innovation systems approach applying it to describe learning-based regional production systems, also known as 'learning regions' (Rutten and Boekema 2007).

In turn definitions of innovation began to lay more emphasis on the broader framework of organizations and institutions and the learning aspect of the innovation process as illustrated in this quote from Lundvall (1992): 'innovation is a ubiquitous phenomenon with gradual and cumulative aspects in the modern economy; a new use of pre-existing possibilities and components'.

2.1.4 Innovation and new competitiveness

Since the mid-1990s, attention on innovation in economic theory has expanded enormously (Fagerberg and Verspagen 2006). Researchers from various economic backgrounds have increasingly discussed and analysed innovation in the context of globalization, since it is acknowledged that modern national economies are increasingly

dominated by competitive global markets and growing dependency on international economic systems (Preissl and Solimene 2003).

The notion that innovation ensures competitiveness through the creation of value has been important since Schumpeter, who recognized that innovation was the main source of competitive advantage in capitalist economies (Rutten and Boekema 2007). Porter (1990) also underlines the value creation and competitiveness aspects of innovation in his theory on new competitiveness. Innovation is a way to increase competitive advantage, of nations as well as individual firms. Firms create competitive advantage by ‘perceiving or discovering new and better ways to compete in and bringing them to market’, which is, according to Porter (1990), the ultimate act of innovation.

In the past decade the value creation element of innovation and its importance for competitiveness in globalized markets also have been extensively discussed in value chain research (Gereffi et al. 2005), which focuses upon benefits from value creation in globalization processes.

An increasing number of definitions have emerged along with the ever expanding research output. Virtually all these definitions include a similar reference to the element of value creation. Krasner (1982) defined ‘innovation as the commercial development of a new idea’. Edquist (1997) defines ‘innovations as new creations of economic significance’. All these definitions stress that innovation involves the process of *commercializing or extracting* value from an idea (Rogers 1998). Walsh (2002) strengthens this notion by adding that an innovation is only accomplished after the first ‘*commercial transaction*’ has been conducted. This focus on the value creation aspect distinguishes an invention from an innovation: ‘an invention is the first occurrence of an idea, while the innovation is successfully commercialising it at the market’ (Fagerberg 2004). Value creation, profitability, and commercialization are key aspects of innovation in virtually all the definitions of innovation since Schumpeter. This implies that an innovation is by definition successful: *innovation is the successful exploitation of ideas*.

2.1.5 Common key elements within the definitions of innovation

The previous paragraphs show the multidimensional nature of innovation. During the past century many definitions of innovation emerged from the four distinct periods of economic literature identified above. However these definitions repeatedly consider newness, value creation, and process as the key elements of innovation. Thus innovation can legitimately be summarized as *the process of introducing something new that creates value*. These elements remained basically unchanged since Schumpeter. However, in the first period authors emphasize newness and the role of the innovator-entrepreneur. In the second period, new economic growth theories focused on how innovation is an evolutionary and endogenous process within an economic system. This was later supplemented by innovation systems theory, which stressed the interactive learning element. In the most recent period, the value creation element has come to prominence in the academic debates about competitiveness in global value chains.

Still today, innovation and entrepreneurship are on the foreground of academic debates in economics, business administration, and other related fields of study; they seem clearly interrelated and the role of the entrepreneur can only be understood if it is placed against the background of the theory of innovation. Hagedoorn (1996) referring to Schumpeter even states that the entrepreneur is the personification of innovation.

In fact, the evolution of the entrepreneurship concept has generated many definitions too (Peneder 2006), the most comprehensive according to Peneder as:

‘Entrepreneurship is the manifest ability and willingness of individuals, on their own, in teams, within and outside existing organizations to perceive and create new economic opportunities (new products, new production methods, new organizational schemes, and new product-market combinations), and to introduce their ideas in the market, in the face of uncertainty and other obstacles, by making decisions on location, form, and the use of resources and institutions’.

This confirms that the definition of entrepreneurship is strongly related to the definition of innovation: entrepreneurship at least includes the initiation and owning of *the process of introducing something new that creates value*.

The three key elements of the innovation definition are still too broad to actually assess in practice whether something is an innovation. Further operationalization is necessary to assess whether something qualifies as ‘new’, whether this something new ‘creates value’, and whether the introduction of newness involves a ‘process’.

2.2 An instrument for assessing innovation

There is quite a substantial literature and quite a few approaches for assessing innovation that have largely been developed within the specialized field of ‘innovation economics’. Most of the approaches measure the degree of innovation in quantitative terms. They do not assess ‘newness’, or ‘process’ in qualitative terms but rather look at one-dimensional proxies. These include the quantitative *output* of innovation (e.g. the number of patents obtained or the share of new products among total production), or *input* in the innovation process, for example R&D expenditure or staff or investment in innovation management (Freeman and Soete 2007).

These approaches, however, cannot be used to measure the multidimensional definition of innovation, especially within clusters of informal small producers in developing countries, where it is generally difficult to obtain reliable quantitative business data. To address such a situation we need an assessment instrument that operationalizes the multidimensional character of innovation and one that is context independent. Surprisingly, the innovation literature has thus far not developed such an instrument. The study proposes a generic assessment instrument that uses a set of criteria with quantitative and/or qualitative threshold values that are derived from the literature covering the multidimensional nature of innovation. This instrument also differentiates, at a given unit of analysis, between the three key elements of innovation—newness, value creation, and process.

2.2.1 Newness criteria

Johannessen et al. (2001) observed that there is no agreement about the nature of newness. What is new? How new? New to whom? Yet, being a key element within virtually all definitions of innovation, some agreed criteria for newness are essential in identifying innovation.

Schumpeter (1934) defined six different types of innovative activity: new products, new services, new methods of production, opening new markets, new sources of supply, and new ways of organization. Johannessen et al. (2001) and Kaplinsky and Morris (2001) and have reshaped the typology as: (i) process innovation—aiming at improving the efficiency of transforming inputs into outputs, (ii) product innovation—leading to better quality, lower price and/or more differentiated products, (iii) business concept of practice innovation—new ways of doing business and attracting new clients. Kaplinsky and Morris (2001) include a further two categories taking over the functions of other actors in the value chain or switching to other chains altogether, (iv) functional innovations—assuming responsibility for new activities in the value chain; design, marketing, logistics, and (v) inter-chain innovations—moving to new and profitable chains. All these categories make reference to the underlying idea of improving the performance of the firm, through raised efficiency and quality, lower prices, attracting new client groups etc.

Criterion 1.1

Threshold value

The new ‘something’ (newness) concerns one of the types of innovation agreed on in the literature (Schumpeter 1934; Kaplinsky and Morris 2001; Johannessen et al. 2001).

Newness can be classified either in terms of a new product, or process, or concept/ practice, or function, or opening up a new market, or new sources of supply, or new ways of organization.

The next criterion concerns the application of the term newness. Chattopadhyay and Srivastava (2007) describe newness as ‘what we have not encountered before’. Newness exists where something is different from the past. There is a point in time that marks the arrival of newness. Johannessen et al. (2001) stresses that newness is a relative, rather than an absolute, concept and here the question ‘new to whom?’ becomes important; since what is new to one firm could already exist somewhere else. Kotabe and Swan (1995) argued that innovation can be investigated in terms of both newness to the firm and newness to the market or world. The newness of something can only be assessed when the unit of analysis has been determined, for instance a firm or a cluster.

Thus innovation is a relative and not an absolute concept; innovation should be understood as something new to the context concerned. Dosi (1998) defines innovation as the ‘...imitation and adoption of new products, new processes and new organizational set-ups’. Aubert (2006) distinguishes three forms of innovation in this respect: (i) innovation, relating to local improvements based on the adoption or imitation of technologies, which are more or less available worldwide or locally, (ii) the building-up of competitive activities with some adaptation and absorption to existing technologies,

and (iii) absolute new design and production of technologies of a worldwide significance, technology creation from a global perspective.

Criterion 1.2

Threshold value

The newness introduced represents a difference from its past within the specified unit of analysis (Chattopadhyay and Srivastava 2007; Johannessen et al. 2001; Kotabe and Swan 1995).

A point in time can be determined/identified that distinguishes between the times where the ‘something new’ did and did not exist in the unit of analysis.

The next question is how different or how new must something be to qualify as new? Most innovation studies acknowledge a distinction between incremental and radical innovations. The importance of incremental step-by-step innovation is often emphasized and much innovation is quite mundane, being incremental rather than radical (Freeman 1994). Much innovation depends more on an aggregation of small insights and advances through ‘learning by doing’ and ‘learning by using’ rather than on major technological inventions (Carayannis et al. 2003).

To what extent then does something, that is different from its past, qualify as new within any working definition of innovation? Since new is relative to the unit of analysis, setting an absolute scale of newness or a framework of reference is not possible. The subjectivity also implies that the newness should have a particular meaning to the people concerned. According to Porter (1990) innovation is the result of an unusual effort and doing something exceptional. People involved in innovating, whether producers or users—experience and acknowledge that the newness is a breakthrough with significance followed by ‘adapters’.

Criterion 1.3

Threshold value

The producers and users perceive and acknowledge the newness as a breakthrough; a major achievement or success that permits further progress (Freeman 1994; Porter 1990).

It can be demonstrated that a few started to introduce the newness, to be later followed by others (early innovators → adopters) on a larger scale.

2.2.2 Value creation criteria

The second element of the definitions of innovation concerns value creation. Porter (1985) defines value as ‘the amount buyers are willing to pay for what a firm provides them’. At the firm level, value is added to a product or material at each stage of its production or distribution.

According to Porter, innovation generates value when a firm provides comparable value to buyers but performs its activities more efficiently through lower costs (cost advantage) or when a firm performs its activities in a unique way, thus creating greater buyer value and attracting a premium price (differentiation advantage). In other words, the newness can either lead to lower input costs or higher sales revenues.

Criterion 2.1

Threshold value

More value is added by the firm either through lower input costs or higher sales revenues (Porter 1985).

A causal explanation can be attributed between the introduction of the newness and lower input costs or higher sales revenues.

In addition to value creation within the firm, the literature on innovation also considers the impact of innovation on the firm's competitive advantage to be critical. Porter (1990) stresses the links between value creation and competitive advantage in the context of globalization. When a firm sustains profits that are above the average for its industry, it is said to possess a competitive advantage over its rivals. One essential aspect of competitive advantage is that rivals either fail to perceive the new way of competing or are unwilling or unable to respond. Through innovations, firms can stay one step ahead of the competition. Innovations that are hard to imitate are more likely to lead to competitive advantage (Porter 1985). So another indicator of value creation is whether a firm is advancing its competitive position in the market (whether local, national, or international) or able to enter into new, more profitable, markets.

Criterion 2.2

Threshold value

More value is generated by improving advancing the unit of analysis' competitive position in local, national or international markets (Porter 1985, 1990).

Market expansion and entry into new markets can be demonstrated after the introduction of the newness.

2.2.3 Innovation process criteria

Initially, innovation was viewed as a one-dimensional 'linear process' proceeding sequentially through relatively independent steps: from research to marketing. This view overlooked the importance of feedback and loops. The evolutionary economic perspective (Nelson and Winter 1982; Dosi and Nelson 1994) advanced the theory of non-linear, open systems models, which were further developed in the chain link model of Kline and Rosenberg (1986). This stressed the interactions between variables, involving feedback loops between research, technological knowledge, and the market.

Since then, various patterns of the innovation process have been explored in the literature. Dosi (1988) suggests that the essential steps include the discovery, experimentation, development, imitation, and adoption of something new. Edquist (1997) observes that the process involves the emergence and diffusion of knowledge elements, and the translation of these into new products and production processes. Tether (2003) sees the innovation process as typically starting with the generation of a creative idea or an invention, which is then brought to life through a research/test phase and an implementation phase: making an investment is an essential part of the process. In sum, innovation is a chaotic process that follows a general pattern of three component elements: (i) creativity, ideas, or invention as solutions for the operation of the business, (ii) developing and testing a pilot, prototype, a trial, and (iii) application, investment, implementation, and commercialization.

Criterion 3.1

Threshold value

The introduction of the newness is typically a chaotic process of three component elements (Nelson and Winter 1982; Dosi and Nelson 1994; Kline and Rosenberg 1986; Tether 2003).

Within the unit of analysis, three component elements of the process can be identified: (i) creativity and the search for ideas, (ii) development and testing, and (iii) application, implementation, investment, and commercialization.

Two particular aspects of innovation system theory are relevant to this dimension of process: (i) innovation is based on cumulative knowledge and learning, (ii) innovation is generally an interactive process involving individuals, organizations, and institutions.

Many authors confirm that innovation is a learning process; loops, feedback, and checks are all part of this learning process. Dosi (1988) observed that a significant amount of innovations and improvements originate from ‘learning-by-doing’ and ‘learning by using’. In evolutionary economic theory, the economy is a learning system where the conditions are constantly changing with innovation playing a key role in this (Dosi and Nelson 1994). Mytelka and Smith (2001) observe that innovation research today, has re-conceptualized the firm as a learning organization focused on knowledge and learning.

Learning in an innovation process implies that an original idea is further improved in a cycle of loops, feedback, and checks in the three-step process described in criterion 3.1. Learning can be likened to walking through another cycle/round of these three elements.

Criterion 3.2

Threshold value

The introduction of newness is typically a learning process within the unit of analysis (Dosi 1988; Mytelka and Smith 2001).

Feedback during the process can be demonstrated to improve or build upon the original idea, and instigates another cycle/round of the 3-step process described in criterion 3.1.

Looking more closely at how learning takes place, Lundvall (1992), Edquist (1997) and Freeman (1995) advanced the theory that the process of innovation is characterized by interactive learning within an innovation system; the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies (Freeman 1987). The concept of the innovation system stresses that the flow of technology and information among people, enterprises, and institutions is key to the process of innovation. It provides the interaction between the actors necessary for effective innovation.

Criterion 3.3

Threshold value

The innovation process is characterized by interaction in the environment of the unit of analysis. (Freeman 1987, 1995; Edquist 1997; Lundvall 1992).

A causal attribution can be made between the introduction of newness and interactions beyond the unit of analysis.

The instrument for assessing innovation proposed here, therefore involves testing eight criteria against the threshold values for a selected unit of analysis. Only if all criteria are met can the presence of *innovation as a process of introducing something new that creates value* be confirmed.

3 Analysing Vietnamese examples of new business dynamics

In 1986 Vietnam initiated an economic reform campaign (*Doi Moi*) setting in motion a transition process from a centrally planned to a free market economy. By then, Vietnam was listed among the poorest countries in the world with per capita GDP at US\$203, being heavily reliant on the Soviet Union for economic aid. Since *Doi Moi*, the Vietnamese economy has experienced a rapid growth as presented in Table 1. GDP growth amounted averagely 7.8 per cent in the period 1995–2008 and the per capita GDP quadrupled since the reforms launch. The economic structure of Vietnam has changed significantly, with agriculture declining in importance from 40.8 per cent of GDP in 1989 to 27.1 per cent in 1999, and to 20.1 per cent in 2006. Industry has gained proportionally in importance, growing from a percentage contribution of GDP in 1989 of 22.9 per cent to 36.7 per cent in 1999, and to 40.1 per cent in 2006. During this period, the contribution of the services sector remained virtually unchanged at 36–38 per cent of GDP. Vietnam realizes its ambitions of integrating into the world's economy, by becoming member of the World Trade Organization (WTO) in 2006.

The economic importance of micro, small and medium sized enterprises (SMEs¹) has been significant in Vietnam in terms of number of businesses, employment creation (Table 2), and contribution to GDP. Many are engaged in retail trade, manufacturing, hospitality, and transportation while a number of small producers are located in clusters, similar to the cases selected as subjects for this study.

¹ SMEs have been divided into 3 subgroups: (i) micro enterprises, engaging up to 9 employees, (ii) small enterprises, engaging up to 49 employees, and (iii) medium size enterprises, engaging up to 299 employees.

Table 1: Selected economic growth indicators of Vietnam, 1995–2008

	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
GDP growth (per cent) *	9.5	6.8	6.9	7.1	7.3	7.8	8.4	8.2	8.5	7.3
GDP (billions US\$) **	20.7	31.1	32.5	35.1	39.6	45.5	53.0	60.9	70.0	81.3
GDP per capita (US\$) **	288	401	413	440	489	555	637	722	818	937
Population (persons millions)	71.9	77.6	78.6	79.7	80.8	82.0	83.2	84.4	85.5	86.7

Note: * constant prices, ** current prices.

Source: International Monetary Fund (IMF), World Economic Outlook Database, April 2008 (Available at: <http://www.imf.org/external/pubs/ft/weo/2008/01/weodata/index.aspx>).

Table 2: Establishments and employment in Vietnam (2002)

Vietnam, 2002	SME			Subtotal	Large SE	Total
<i>Establishments</i>	Micro	Small	Medium			
Number of business establishments (x 1000)	2,660	46.7	11	2,718	2.5	2,720
Percentage of all establishments (per cent)	97.8	1.7	0.4	99.9	0.09	100
<i>Employment</i>						
Employment (1000)	4,375	887	1,221	6,483	1,909	8,392
Percentage of persons engaged (per cent)	52.1	10.5	14.5	77.3	22.7	100
<i>Average size of establishments</i>						
Persons engaged per establishment	1.6	19	112	2.4	773	3

Source: GSO Establishments Census 2002, classified as per tentative size groupings (Available at: www.gso.gov.vn).

The development of the SME sector significantly contributes to the economic growth of the country. However, ‘measuring the contribution to GDP on the basis of firm size is challenging due to the diversity and dynamism of the same sector. According to one estimate however, SMEs account for approximately 26 per cent of Vietnam’s GDP, 31 per cent industrial output, 78 per cent retail turnover, 64 per cent transportation value, 49 per cent non-agricultural employment and 25 per cent of labour force’ (Vietnam’s Report On The Integrated Plan of Action For SME Development SPAN, 2004).

Recognizing the importance of small and medium enterprises in the economic development, the Vietnam government at present pays special attention to promotion and support for development of micro and household based crafts businesses in the country. The new law on business enterprises and firms is aimed at the promotion of all kind of businesses and economic sectors, making equal conditions for everyone in business activities. Within this view the SMEs and in particular non-farm household enterprises are acknowledged to be important for their potential to absorb a growing labour force, to slow down regional and rural–urban migration, to promote a more equitable distribution of income (Oostendorp 2009).

Despite the economic advancements during the last twenty year of economic reform, the Vietnamese private sector—and SMEs in particular—is not yet sufficiently competitive in a more global context (Nguyen et al. 2008). As a result, most companies cannot yet withstand the competitive pressure resulting from liberalization and the opening to the world market not to mention exporting to the world market. There are Vietnamese innovation and industrial policies focusing on specific support institutions for enterprises in technologically advanced industries, similar to western innovation policy approaches. However, at the policy forum in 2006² ‘Innovation Policies and Institutions for the Knowledge Economy’, Vietnam was positioned among the group of countries that are only in the early stages of introducing innovation programmes which are about technology adoption and technology upgrading. In the Hanoi Declaration (2006) on ‘Strengthening SME Competitiveness for Trade and Investment’³ one of the policy focuses is on encouraging SME innovation. However, practical execution is still not realized.

3.1 Research methodology

Since 1997, the first named author of this paper has been involved in training and research projects for household and SME development in northern Vietnam. Typically, economic activities in this area revolve around agriculture and related activities, and several villages have specialized in traditional crafts and small industries such as wood, silk, ceramics, noodles, etc. Small producers in such villages often operate with some degree of cooperation, matching Schmitz’s definition (1999) of a cluster: ‘the geographical and sectoral concentration of enterprises’.

Surveys showed the existence of several clusters of revitalized economic dynamics that involved new ways of production, new products, and new business practices all of which enabled small producers to expand their markets. A variety of sources including development NGOs, the media tourist agencies, and state economic agencies have all published reports with similar findings. These observations sparked the central question

² Incheon Education and Science Research Institute, Seoul, Republic of Korea, 29 November–1 December 2006.

³ www.apec.org/apec/ministerial_statements/sectoral_ministerial/small___medium_enterprises/2006_small_and_medium.html

of this study; whether these reported cases of revitalized economic dynamics among poor, small producers in northern Vietnam were due to innovation.

The exploration began in mid-2006, by identifying examples of clusters of small producers. The study takes the cluster as unit of analysis for the case studies as this best represents the production system in these villages, given the interactions and interdependence of individual firms and the different roles they play as early innovators and late adaptors.

Initial data collection began with listing the craft villages and clusters of small producers through scanning various secondary resources: project reports, newspaper articles, internet sites, and official and quasi-official documents and a variety of resource persons. The list included the major characteristics of a number of clusters, their products and methods of production, the markets they serve and new developments in production, products or ways of doing business. From this initial list a set of interesting clusters was shortlisted for further exploration, with first field visits being carried out to more closely examine newness through observation and interviews with small producers so as to get a 'feel' for the new business dynamics atmosphere. Vietnamese colleagues, trained in the previously mentioned project and with a good understanding of small business in Vietnam and a command of English, assisted in the fieldwork facilitating translation and the interpretation of data. This initial screening process led to the following clusters being selected for analysis:

1. Bat Trang: a traditional ceramics village in the Red River Delta in northern Vietnam, 15 km east of Hanoi. The village has 1020 micro and small household enterprises⁴ producing ceramics. Recently many small producers in the cluster introduced a new process, a gas oven, for baking ceramics and have since expanded their market due to improved quality and increased production volume.
2. Duong Lieu: a cassava starch and noodle-producing village in the Red River Delta, 30 km southwest of Hanoi. In the past five years, 20 small producer households switched from producing cassava noodles to a new end product; children's sweets made from cassava. They now sell to more profitable outlet channels, such as supermarkets in Vietnam.
3. Van Phuc: a traditional silk craft village in Ha Tay province, ten km west of Hanoi where a cluster of 785 small, homebased producers are engaged in silk weaving, tailoring, and sales. Over the past ten years, many of these small producers have established retail shops in the village's main street, offering a much broader range of products.
4. In the Quang Hoa district in the Thanh Hoa province, 225 km southwest of Hanoi, a development NGO started a technology transfer project in 2006 establishing pre-processing workshops for small bamboo producers. Instead of selling unprocessed bamboo culms, small producers now cut, split, and smooth bamboo

⁴ Micro and small entrepreneurs in Bat Trang typically have a home-based workshop, with between one to five (micro) or five–20 (small) employees, often family members employed under informal contracts.

into slats for floor parts supplied to intermediaries of IKEA for the European market.

The research selected four cases so as to provide a stronger basis for confidence and validity (Yin 2002). Moreover, four cases provide a richer base of information to identify patterns and trends for deducing theoretical, policy, and operational implications.

In May 2007, a second round of fieldwork took place. In depth data collection focused on the assessment instrument criteria through visual observations of the households, the workshops, the products, the tools, and machines to get an overall impression of the cluster. Then the research team stayed for several days in each village undertaking in depth interviews with about 15 small producers in each one. The interviews usually took an hour and the entrepreneurs showed openness and enthusiasm in providing information about the newness introduced.

After having collected sufficient data for assessing the criteria, measured by when no additional insights were emerging from observations or interviews, the data were further processed into case descriptions organized according to newness, value creation, and process, as described below. The case studies provided the basis for interpreting data for each criterion in the matrix presented at the end of this paper. Finally, in January 2008, a third fieldwork trip was held to re-verify the case descriptions.

3.2 Bat Trang

3.2.1 Newness

The first case concerns small producers in Bat Trang who traditionally produced pottery and ceramics in charcoal-briquette kilns. Over the past five years, two thirds of them have switched to a technologically advanced gas oven. Better control of baking temperatures combined with more intense heat resulted in the production of thinner and smoother ceramics with fewer defects. The new technology also allows the possibility of creating a broader range of shapes with higher quality. While the assortment used to be limited to standard pottery and home ceramics, a broad variety of contemporary and popular design, types, shapes, colours, and designs of ceramics are now produced.

In addition, the small producers started to take an active role in direct sales to new groups of clients through opening retail shops. Small producers linked up with tourist operators in Hanoi to promote Bat Trang, and in a short time the village has become a tourist destination for buying ceramics. Both the small producers and the local authorities consider the introduction of gas ovens in Bat Trang as a success story.

3.2.2 Value creation

The new developments translated into higher sales revenues for the small ceramics producers. The higher quality resulted in higher prices and the market expanded for domestic consumption, and increasingly for export contracts for Europe, Japan and the USA. By 2006 the ratio of the export and domestic sales of the total of Bat Trang had increased to 65:35. Small producers play an important role in export through subcontracts

with larger companies and occasional direct contracts through tourists, families overseas, and individuals who visited the village.

3.2.3 Process

The introduction of gas ovens was initiated by one small producer, Mr. Le Duc Trong, who purchased a gas oven from China in 1995. Small producers in Bat Trang initially observed with interest and slowly started to switch to a gas oven as well. After initial trials and testing, the small producers succeeded in getting the ovens to operate shortly after their installation and now produce and sell a larger volume of higher quality ceramics.

The small producers started to try out a broader assortment of products, picking up ideas from customers who suggested different shapes, designs, and colours for the ceramics. Typically, a producer first develops a few test samples, or produces some extra copies of a contracted order and tests their utility and marketability before expanding production. Small producers compare results with other producers and review new technical possibilities and constraints, which determine the eventual selection of the assortment. The small producers are very aware of the need to do better all the time, not only because of increasing competition within their village but also from other villages that try to copy Bat Trang's success.

The local People's Committee actively promotes Bat Trang as the ceramics village and supports this through exposure, facilitating cooperation on business contacts, and infrastructure. Overseas families and friends advise on their preferences for product design and on technical matters. Some small producers have family contacts with the Polytechnic University in Hanoi, which conducts research in the quality of glazing.

3.3 Duong Lieu

3.3.1 Newness

The second case concerns the introduction of a new product in Duong Lieu where many household businesses produce noodles from cassava starch. In the last five years, some 20 households have switched to producing a new end product, childrens' sweets from cassava starch.

Producing the sweets is a relatively basic and straightforward process that involves heating and mixing the cassava starch with several other ingredients. The wrapping and packaging of sweets requires a major investment in a state-of-the-art machine. The small producers put effort into developing their own house-style for the packaging design. Several candy producers registered their designs at the Department of Property Rights, preventing others from copying them. Due to the considerable investment costs involved in setting up a new workshop set-up, the sweet production has, so far, only been feasible for middle income households.

3.3.2 Value creation

Candy production adds more value to the processing of cassava starch than noodle production. The sweets are sold at a 'good' price to agents in Hanoi who distribute them to new profitable markets within Vietnam, such as shops, mini-markets and supermarkets. The sweets sell well, especially at some holiday times. They compete with imported sweets and provide the households with higher overall sales revenues than those from noodles.

3.3.3 Process

The initial idea for producing candy from starch came from one better-off family in the village. Today, this family business enterprise has become a successful small factory, serving as a model for other small candy producers. The switch to candy production implied an important change in the way in which workshops are set-up, requiring investments in new equipment and machinery, redesigning the production line and hiring new staff. All these steps were taken by the households themselves, without any external assistance involved.

The 20 candy producers currently have similar production facilities. There is a lot of informal exchange of ideas and practices within the cluster despite the fact that small producers consider their neighbouring sweets producers as competitors. The small producers therefore are continuously pursuing new types and tastes and consult with the buying agents in Hanoi about new trends in taste, colour and shapes, as well as for wrapping and packaging.

3.4 Van Phuc

3.4.1 Newness

The third case concerns the introduction of a new marketing function. Before the introduction of the free market economy in Vietnam, silk products in Van Phuc were sold to state-owned intermediaries. In the 1990s, Ms. Nguyen Truc Hong became the first person to open a shop selling local silk in the village. Many have followed her example and today there are over 100 silk shops in Van Phuc.

The producers also have broadened their range of products. Originally, the production focused exclusively on traditional silk fabrics, garments, accessories, and garnitures made from silk that they produced and tailored themselves. Nowadays one sees much more stylish design in the shops with new shapes, colours, designs, and a range of new products that includes shawls, jackets, pyjamas, sleeping bags, and accessories (ties, bags, purses, etc.). Many of these new products break with the tradition of exclusively using high quality silk. Products are often mixed with synthetic materials of a lower quality.

3.4.2 Value creation

Over ten years, the overall silk production in Van Phuc has tripled and sales to domestic and foreign tourists visiting the small shops, accounting for 40 per cent of the sales. The lower input costs and quality of the synthetic materials have resulted in lower prices, which have attracted new client groups who accept the lower quality. This has led to an overall increase in sales volumes.

3.4.3 Process

The process of opening shops in the village started at the time when privately owned shops just began to develop in Vietnam. After the initial success of Ms Hong's retail shop, other small producers and traders followed suit and started to set up their own shops on an experimental basis; trying-out different set-ups, product displays and ranges. By closely watching whether clients come, what they buy, at what price and what their neighbours did, the shop owners gradually improved their shops into attractive well-organized shops, packed with a broad assortment of silk products, with sellers able to provide information on the products, in English if necessary.

The interactions within the cluster are critical; small producers keep an eye on each other's new product designs. Moreover they have developed informal networks with technical/education/vocational centres and links with tourist agencies in Hanoi that provide suggestions and feedback. The local authorities actively promote Van Phuc as a silk village and have invested in new infrastructure. The small producers are part of a larger silk industry in Vietnam, which includes fashion houses, large production and export companies, and government agencies. Ideas about design etc. can also be gleaned from magazines, media, and other means.

3.5 Quan Hoa

3.5.1 Newness

The fourth case concerns the introduction of bamboo pre-processing technology for small producers. In 2005, the French NGO 'Groupe de recherche et d'échanges technologiques' (GRET) initiated a development project called the 'Bamboo Supply Chain Development project' to improve the position of producers in the Quan Hoa and Ba Thuoc districts (Thanh Hoa Province, northern Vietnam) in the bamboo value chain. Previously, the pre-processing steps were carried out by two larger bamboo factories—The Bamboo Factory (TBF) and Tien Dong—which did the cutting, splitting, and smoothing of bamboo into slats for further processing into floor parts, boards, and furniture components for export through IKEA to the European market.

The GRET project facilitated the establishment of three new slat production workshops and organized small bamboo producers' groups to operate and manage the workshops. The TBF and Tien Dong did not consider the workshops as competitors for their survival, but were cooperative and assisted the workshops by leasing them equipment and providing technical advice and specifications for the bamboo slat processing. Not long

after the workshops' establishment, several other private initiatives emerged and copied the project workshop model and also began to supply slats to the bamboo factories.

3.5.2 Value creation

The underlying idea of the GRET project was that pre-processing bamboo into slats would provide the small producers with higher sales revenues. Despite the fact that value is added, the direct sales revenues still proved to be low due to the low prices offered by TBF and Tien Dong, which were the leading players in setting the price of the bamboo. Alternative market channels have not yet been established. GRET continues to look for further technological developments for alternative by-products such as charcoal and mushroom growing substrate from bamboo saw dust.

3.5.3 Process

Starting with the project idea in 2004, a team from GRET conducted a survey to explore the opportunities for, and feasibility of, slat production for bamboo producers. Subsequently, GRET facilitated the set-up of the workshops by proposing the appropriate technology and serving as a bridge linking the bamboo producers with the buyers. Once the workshops were established, the bamboo producers and technicians from GRET jointly tested and implemented the technology. Apart from some minor adjustments, the slat production process and machines have not changed since the establishment of the workshops.

The matrix below presents the interpretation and summary of the case descriptions for each criterion of the operationalized definition of innovation (described above).

Unit of analysis: clusters of small producers	Bat Trang	Duong Lieu	Van Phuc	Quan Hoa
<u>Criterion 1.1</u> The new 'something' (newness) concerns one of the types of innovation agreed on in the literature.	The gas oven is a new production process enabling the production of higher volumes of higher quality, with more variety in design.	The production of sweets instead of noodles from starch is a more profitable new product.	Direct retail sales to new client groups is taking over the marketing function from other players in the value chain.	The pre-processing of bamboo poles into slats is a new function applied by small producers.
	yes	yes	yes	yes
<u>Criterion 1.2</u> The newness introduced represents a difference from its past within the specified unit of analysis.	The first small producers purchased the gas ovens in 2001/2. Before that, ceramics in Bat Trang were only produced in charcoal kilns.	Five years ago a cluster of small producers started to produce the candy. One candy factory was established in the village 13 years ago.	The first shops were established in 1995. Before that time it was difficult to set up a private shop in Vietnam.	In 2005 GRET started to establish 3 slats workshops. Before then there was only one existing workshop producing chop sticks.
	yes	yes	yes	yes
<u>Criterion 1.3</u> The producers and users perceive and acknowledge the newness as a breakthrough; a major achievement or success that permits further progress.	Over the past 6 years the gas oven been adopted by 2/3 of all small producers in Bat Trang.	Over 5 years, 20 households have switched to the candy production and there is evidence of a growing trend in the village to switch to candy production.	Nearly every house on the main street has transformed into a retail shop since 1995. At present there are around 100 silk shops.	Several private initiatives have copied the workshop example and are now producing floor parts.
	yes	yes	yes	yes

<u>Criterion 2.1</u> More value is added by the firm either through lower input costs or higher sales revenues.	Higher sales revenues as a result of the increase in quality of the ceramics. Greater buyer value implying a higher price. yes	The production of sweets instead of noodles results in higher sales revenues. yes	Higher sales revenues as a result of higher sales volumes and lower input costs for mixed silk fabrics. yes	Higher sales revenues as a result of the pre-processing of bamboo into strips. yes
<u>Criterion 2.2</u> More value is generated by improving the unit of analysis' competitive position at local, national, or international market	New customers such as foreign tourists, restaurants, and hotels. These occasionally enter into follow-up contracts with Japanese, European, and American visitors. yes	Although both noodles and sweets are sold on the domestic market, the sweets are sold into new and more profitable markets, such as supermarkets in Hanoi. yes	New and broader client groups—both domestic and foreign tourists—are coming to Van Phuc to buy silk and silk products. yes	The small producers did not enter new markets and their competitive position has not really changed. The workshops only can sell to 2 buyers as there is a high level of vertical integration in the chain. no
<u>Criterion 3.1</u> The introduction of the newness is typically a chaotic process of three component elements.	The idea of the gas oven came from the small producers themselves with one taking the initial step of purchasing one. The small producers experimented with the best way to operate the oven before producing on a larger scale and commercializing	The small producers themselves got the idea to switch to candy production and did the exploratory and preparatory work themselves. They tested whether they could successfully sell the candies, and started to explore ideas to improve sales / margins by using	The idea of establishing shops came from within the village. Gradually shops were set up, and improved. Shop owners continue to test new ideas to make their shops as attractive as possible, including having the workshop nearby so that tourists can visit.	The workshop owners themselves did not go the 3 stages described in the literature. Ideas were imported from outside, which also supplied the machinery and production standards. The owners were only involved in the implementation phase.

	products.	attractive wrappers.		
	yes	yes	yes	no
<u>Criterion 3.2</u> The introduction of newness is typically a learning process within the unit of analysis.	Small producers continue to seek to improve the quality of their ceramic products. They continuously generate ideas for better glazing, test these and implement them if they prove successful. yes	Small producers test new textures, tastes colours and wrapping of the sweets. Every year buyers ask for new flavours and the producers respond to these demands. yes	The shop owners pursue new ideas and experiment themselves to make the shops more attractive and select the best range of products, which are constantly evolving. yes	The farmers did not further develop the strip processing machine technology and still use it the same way as it was originally installed. no
<u>Criterion 3.3</u> The innovation process is characterized by interaction in the environment of the unit of analysis.	There is interaction with buyers who suggest designs, colours and the quality of the ceramic products. The authorities support ceramics production in Bat Trang and universities do research in glazing techniques. yes	Interaction with buyers, mostly in Hanoi, over the taste of the sweets. yes	There is interaction with tour operators, and with the clients who suggest products. The local authorities and national government are promoting Van Phuc as a silk village. There are exchanges with fashion schools. yes	There is interaction with the development NGO and the factories that buy the bamboo strips. yes
All criteria confirmed?	yes	yes	yes	no

4 Discussion and conclusions

4.1 Discussion

The primary empirical data presented in the matrix in the preceding paragraph positively answer the research question whether innovation occurs in clusters of small producers in northern Vietnam: process innovation takes place in Bat Trang ceramics village, product innovation in Duong Lieu village, and functional innovation in Van Phuc silk village. The results confirm innovation at the ‘cluster level’—the unit of analysis. The conclusion that innovation does take place in these three traditional Vietnamese craft villages is perhaps surprising in the sense that innovation was not expected, not planned for or promoted and no explicit innovations system exists with a specific agenda for promoting innovation. Rather the small entrepreneurs innovated on their own strengths.

The fourth case study did not meet all the criteria. Contrary to the expectation of this technology transfer project for bamboo small producers, ‘cluster-level’ innovation did not take place. Several steps of the innovation process and the associated learning took place outside the cluster. The development NGO—as an external innovation system actor—proposed, researched, and developed the introduction of the new technology and as such was a leading partner in the cluster’s innovation process and learning. Another criterion not met by this case was improving its competitive position. After adding the new (to the cluster) production steps the products were still sold to the same buyers in the value chain, who originally did the production. These buyers hold a key position in the value chain and their strong bargaining power allows them to negotiate a low price. As a result the actual competitive position of the groups did not change and there was little value creation effect.

The small producers innovated by themselves, drawing on their own strengths and initiative via internal processes, interactions, and knowledge accumulation within the cluster. In this respect, this paper demonstrates local innovation capacity from small producers who supplement and combine local indigenous knowledge and technologies with global state-of-the art technology. This contradicts the underlying assumptions of the trickle down theory, appropriate technology, and indigenous knowledge for low income countries that do not adequately acknowledge local innovation capacity as stated in the introduction of this paper. These theories assume the need for external assistance and external actors to help small enterprises in poor contexts in developing countries to learn and advance.

The fourth bamboo case, not assessed as innovation, is an illustration of the above mentioned theories advocating external assistance and interventions to help small producers to learn and advance, implying that the external actor—an NGO—took over part of the learning in the innovation process. The external actor was eager and diligent to own the learning from the small producers in the cluster concerned. However, why were the small producers not first in showing eagerness to learn, as happened in the other innovation cases? The question what influences eagerness to learn and discover is not yet understood within evolutionary economics, even though the discipline recognizes that learning is a critical element in the innovation process (Dosi and Nelson 1994). This also

is relevant for these poor communities, for what reason do they have a particular drive to innovate in these communities for some reason? Is there an optimum or 'desirable' level of learning or an optimum amount of innovation? To what extent do we need external organizations to help with learning?

The absence of direct external public or private 'innovation' support or interventions in the three successful examples is in line with the endogenous growth theory (Romer 1994) which argues that economic growth comes from within a system. However, despite the innovation process taking place entirely within the clusters there was also much interaction with the outside world: incentives, ideas, suggestions, and opportunities came from buyers, sellers, media, and industries. This implies a need for further understanding what role endogenous growth and innovation processes constitute in such contexts and the relevant contributions made by internal and external factors.

The absence of external innovation support actors can also be addressed from another theoretical perspective: innovation systems theory, which considers innovation to be a mainly interactive process: 'the innovation process takes place in a network of institutions in the public and private sectors' (Lundvall 1992). However, this study presents three cases of innovation that occur where there is no system of formal public and private organizations actively and deliberately promoting innovation since the Vietnamese innovation policies and programmes are at an early stage of taking shape. Moreover, the steps of the innovation process in these examples did not take place through such a network of formal organizations, but solely in the informally organized clusters, raising the question of whether they constitute an informal system of innovation. This raises a related issue: that in the three confirmed innovation cases there are interactions with a larger system but these do not involve sharing or owning innovation process steps—as formulated in the innovation system definition—but merely exchanging incentives, ideas, and suggestions from clients, suppliers, competitors, etc. If the interactions do not involve sharing steps in the innovation process, then how precisely do these interactions fit within innovation systems theory? The operationalization of the definition shows the necessity to distinguish between a 'shared innovation process' and 'interaction'.

How is this shared innovation process structured in a larger system? Edquist (1997) stressed that institutions play an increasingly important element in the innovation systems theory. They are seen as playing a vital role in creating trust and providing the basis for taking risk and investing in innovation. From a background position, institutions have been brought more and more to the forefront of analysis and have come to be viewed as a main character in the innovation process. As the number of actors involved increases, the innovation process becomes more complicated and more interactions occur. For both informal and formal innovation systems, questions about how these systems are organized emerge. What are the rules of the game? How are the interactions and the cumulative knowledge generation of the system's actors structured? How is the created value shared within the system?

Regarding the sharing of value creation, Gefferi et al. (2005) take the position that innovation can enable low income countries to strengthen the competitiveness of their

firms through participation in global value chains. The fourth case describes small producers taking over a bamboo pre-processing function from the leading actors in the chain, which could be labelled as outsourcing. It illustrates how the created value is shared; the small producers do not improve their position in the value chain and they receive little of value creation. The value chain structure remains unchanged, with the lead actors having a strong bargaining position and claiming the lion's share of the overall value creation in the chain. This highlights the importance of understanding the power relations and how the chain is governed. New technologies may be introduced to small producers in the value chain, but if improved competitiveness does not materialize then, according to the operationalized definition, this is not innovation.

The application of an innovation assessment instrument developed for this research also provides better understanding of innovation in small producers' contexts in developing countries and raises issues for further discussion. Although the theoretical basis of the instrument comes from contemporary economic concepts on innovation, which were principally developed from studies rooted in the context of western developed economies, the operationalized definition was able to differentiate between innovation and non-innovation in the context of a low income country. This strengthens the validity of the conclusion, that innovation did actually take place in three of the four cases.

Innovation research mostly employs one-dimensional proxies for measuring innovation. These either focus on inputs or outputs. These instruments are typically applied in the context of western economies where quantitative data on R&D or on the (sub) market share of innovative products are widely available. However, these instruments cannot be used for applying the multidimensional definition in the context of informal clusters of small producers in a developing country. The operationalization of the definition into an assessment instrument needs to acknowledge the multidimensional character and should be applicable regardless of context to small, medium, and as well as large firms in both developed and developing economies.

There is scope for further refining the instrument's criteria and threshold values. Since these criteria and thresholds have not been completely explored in the literature, it was not possible to make unambiguous choices for all of them. The breakthrough threshold 'it could be demonstrated that a few started to introduce the newness and many followed at a larger scale', for instance could be differently interpreted. What exactly are 'many' and 'larger scale'? The threshold for whether all steps in the innovation process take place within the cluster requires a detailed historical review. Different people involved could have different perceptions of the past making it difficult to construct the historical path. Assessing data against the threshold value for learning also proved challenging; at what point there is learning involved related to innovation? The threshold value concentrates on feedback loops, when can this be interpreted as relevant to innovation?

The operationalization of the definition illustrates the necessity to be explicit about the level at which innovation is assessed; the firm, the cluster, the value chain, etc. At one level the instrument could confirm a criterion, while at another level it may not. For instance, if the unit of analysis of the fourth case is altered to a broader level—incorporating the development NGO that introduced the newness, then the process and

learning criteria would be confirmed. At the same time, other criteria may not apply anymore when enlarging the unit of analysis. For example, in the fourth case, the production process was new for the cluster, but not for the broader level at which the newness criterion would not be confirmed.

4.2 Summary and conclusions

The main question that this paper addresses is whether innovation takes place within clusters of small producers in northern Vietnam. In exploring how innovation is understood in economic theory, the study found this to be a complicated question, since no universally agreed operational definition has emerged throughout the past century of economic analysis on innovation.

Over the years, innovation has become an essential element in new theories about economic growth and development, as described in literature on new competitiveness, value chains, innovation system, endogenous growth and evolutionary economics. Economic researchers exploring these theories usually refer to Schumpeter's initial definition from 1934, adding new insights and varying the emphasis placed on the different elements of the definition. Through this broadened theoretical basis, innovation has become a complex multifaceted concept. However, three common elements run through all of these definitions: newness, value creation, and process. Innovation can thus be summarized as 'the process of introducing something new that creates value'. However, to assess in empirical terms whether innovation takes place in clusters of small producers in northern Vietnam, this summarized definition needed to be operationalized.

Since no such instruments have surfaced in the literature so far, this study took up the challenge and has developed a generic assessment instrument based on the existing innovation literature. The instrument consists of a set of criteria to be tested against threshold values to test the three key elements—newness, value creation, and process—for a given unit of analysis. Innovation is only confirmed if all the criteria are met. The different strands of literature all showed a similar theoretical embedding, historical path, and coherence of the three key elements of the definition, thus providing a solid foundation for the overall design of a generic instrument. However, contemporary economic theory does not provide explicit insights to draw out specific criteria and threshold values. This paper interpreted underlying theoretical concepts and definitions to construct the operational criteria and threshold values.

This paper demonstrates innovation in small producers' clusters in a developing country. Poorer producers fully join and take advantage of economic growth and globalization. This is not in line with some positions in the development economics debate that globalization mostly widens the gap between rich and poor. Innovation as demonstrated in this paper could broaden opportunities for poor small producers, a key issue in the debate on poverty alleviation, and in particular its value creation aspect. It is certainly an interesting avenue to pursue deeper understanding of innovation and development processes in low income countries, raising the following suggestions for a future research agenda.

The first issue for further research concerns the most remarkable observation of this study; that small producers in the three clusters where innovation was demonstrated innovated on their own account, using their own strengths and initiative, while the 'technology transfer project' did not demonstrate innovation at cluster level. A further research question is *how did the innovation emerge in the confirmed cases?* Comprehensive lists of innovation processes, factors, and drivers have been described for Western companies, but what about clusters of small producer in Vietnam? Do similar factors also apply? Further related research questions include: What made it possible for small producers to innovate on their own strengths without the support of an innovation system, understood as necessary in Western economies? Was it because of endogenous or exogenous factors? Does this suggest the existence of some kind of informal innovation system? And, what determines the eagerness to learn and innovate?

A second issue is the contribution that innovation makes to poverty alleviation in a broader context. This paper reviews three success stories of innovation but what of the effect on, for instance, neighbouring communities that did not introduce new things? Was the success of these villages at the expense of other villages nearby? How many failing villages will there be for every success story? Equally, within the cluster there can be a question of the distribution of the benefits, particularly given the heterogeneity within the clusters of small producers or in the value chain. Are the early birds (early innovators) the only ones to catch the worm? Do they take a disproportionate advantage of the value created?

Finally, the operationalization of the definition of innovation helped explore innovation among clusters of small producers in a developing country (Vietnam). Further research and broader application of the instrument could further refine the operationalization and assess the scope for innovation among small producers on a larger scale providing comparative material, between sectors, geographic areas, or businesses in various stages of development. When more such studies from developing countries become available, the question 'is it innovation?' can be addressed more systematically by drawing on a body of literature and empirical data that studies innovation in developing countries.

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