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Entrepreneurship and Economic Growth

A critical review of Empirical and Theoretical Research

Christian Friis, Thomas Paulsson och Charlie Karlsson
Jönköpings International Business School

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Christian Friis

Thomas Paulsson

Charlie Karlsson

Jönköping International Business School

ITPS, Institutet för tillväxtpolitiska studier
Studentplan 3, 831 40 Östersund
Telefon: 063 16 66 00
Telefax: 063 16 66 01
E-post: info@itps.se
www.itps.se

För ytterligare information kontakta: Göran Hallin
Telefon: 08-456 67 00
E-post: goran.hallin@itps.se

Förord

Sveriges tillväxt har under de senaste trettio åren utvecklats långsammare än för genomsnittet av länderna inom OECD. Under samma period har västvärldens ekonomier genomgått många närmast dramatiska strukturförändringar. Sammantagna pekar flera av dessa förändringar mot en ökad betydelse av entreprenören och av ett entreprenörskap som motorer för samhällets tillväxt. Allt fler talar om behovet av en integrerad politik för entreprenörskap som en del i en tillväxtorienterad politik. Ett uppenbart problem i det sammanhanget är att entreprenörskap betyder många olika saker och har olika innebörd för tillväxten beroende på vilken tolkning vi väljer.

I den här studien är syftet att ge en översikt över hur entreprenörskap definieras och behandlas i forskningen. Det är en vid syn på entreprenörskap som presenteras. Entreprenören förekommer inte bara som nyföretagare utan finns också inom befintliga företag. De empiriska studierna har dock mycket kommit att handla om just nyföretagande. Resultaten av denna forskning är långt ifrån entydiga. Nyföretagande och tillväxt hänger ihop, men på ett komplext sätt där entreprenörens roll är mycket vidare än nyföretagarens. En politik för entreprenörskap måste därmed bli en politik som understödjer individers och organisationers möjligheter att uppmärksamma och tillvarata outnyttjade potentialer.

Denna rapport har skrivits av Thomas Paulsson, Christian Friis och Charlie Karlsson, alla vid Internationella Handelshögskolan i Jönköping, på uppdrag av ITPS. Författarna ansvarar själva för rapportens innehåll liksom för de slutsatser som dras. Projektledare vid ITPS har varit Göran Hallin. Rapporten är i huvudsak författad på engelska, men inleds med en fyllig svenskspråkig sammanfattning. Rapporten utgör slutrapporten i ett särskilt regeringsuppdrag till ITPS.

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Sture Öberg

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Entreprenörskap och ekonomisk tillväxt – en sammanfattning

Under de senaste två decennierna har genomgripande förändringar, ett paradigmskifte, ägt rum i ekonomin: storföretagens dominerande ställning har minskat och småföretagen betydelse för ekonomins tillväxt och utveckling har ökat.

Syftet med den här rapporten är att göra en kritisk översikt över hur sambandet mellan entreprenörskap och ekonomisk tillväxt beskrivs i ekonomiska teorier och att sammanställa aktuella empiriska studier. Rapporten utgör en beskrivning av, och ett discussionsunderlag för, den diskrepans som existerar mellan teoretisk och empirisk forskning på området. Tonvikten ligger på hur entreprenörskap beskrivs i förhållande till ekonomisk tillväxt och där relevanta och empiriskt bristfälligt belysta frågeställningar inom forskningsfältet identifieras. Rapporten är disponerad på följande sätt: Begreppet entreprenörskap definieras inledningsvis. Därefter, i avsnitt 2, följer en genomgång av teorier och skolor om entreprenörskap och ekonomisk tillväxt, från 1700-talet och fram till idag. I avsnitt 3 presenteras en sammanställning av empiriska resultat följt av diskussion och slutsatser i avsnitt 4 och 5.

Begreppen entreprenörskap och ekonomisk tillväxt

Ett av problemen med att studera betydelsen av entreprenörskap är svårigheten att definiera begreppet. På liknande sätt är inte ekonomisk tillväxt ett givet begrepp. Inom ekonomisk teori ges ofta entreprenören en plats bland marknadsaktörerna. Det råder dock en viss oenighet om entreprenörens betydelse för ekonomisk tillväxt. Ekonomisk tillväxt kan till exempel innefatta en ökning av BNP per capita, utökade produktionsmöjligheter i ekonomin, förbättrad köpkraft, en ökning av levnadsstandarden, en högre ackumuleringstakt av innovationer och kapital och en högre sysselsättningsgrad. De flesta definitioner innefattar en politisk såväl som en ekonomisk dimension.

Det finns ett stort antal definitioner inom olika discipliner som behandlar olika yttringar av entreprenörskap. Denna rapport fokuserar på ekonomiska aspekter, dvs. på hur entreprenörskap beskrivs i förhållande till tillväxt i ekonomisk teoribildning och på vilka empiriska samband som kunnat påvisats. Entreprenören kan ha en ekonomisk funktion som resursfördelare eller innovatör.

Definitioner av entreprenörskap i ekonomisk teori

I rapporten görs det en uppdelning mellan *teoretiska* och *operationella* definitioner av entreprenörskap. Bland de tidiga teoretiska beskrivningarna finns Cantillons (1755). Han beskrev "undertakers", dvs. marknadsaktörer, entreprenörer, som agerade trots osäkerhet. I början av 1920-talet definierade Knight (1921) entreprenörskap på ett liknande sätt, men gjorde en åtskillnad mellan *risk*, som kan beräknas, och *osäkerhet*, som inte kan beräknas. Schumpeter (1934) beskrev entreprenören som bärare av förändring och ekonomisk utveckling genom kreativ destruktion. Entreprenörskap innebar genomförandet av nya idéer och kombinationer. Schumpeter nämnde fem uttryck för entreprenörskap: en ny produkt, en ny produktionsmetod, en ny marknad, en ny insatsvara och en ny organisationsform. Entreprenörskap som en katalysator för konkurrens beskrevs av Kirzner (1973). Entreprenören upptäcker brister i marknadsprocesserna och gör en vinst i att eliminera bristerna och återställa marknadsjämvikten. Entreprenöriella aktiviteter beskrivs således både i termer av att skapa ojämavikt på marknaden, genom kreativ

förstörelse, och i termer av att återskapa en ny jämvikt. Holcombe (1998) argumenterar för att de båda funktionerna i grunden är lika; båda drar nytta av outnyttjade vinstmöjligheter och båda förändrar den framtida marknadsdynamiken.

Wennekers et al. (1997, s. 5) [egen översättning], föreslår en övergripande teoretisk definition:

Entreprenörskap är den manifesta förmågan och viljan hos individer att på egen hand, i grupper, inom och utom befintliga organisationer:

- upptäcka och skapa nya ekonomiska möjligheter (nya produkter, nya produktionsmöjligheter, nya organisationsformer och nya kombinationer av produkter och marknader)
- introducera sina idéer på marknaden, trots osäkerhet och andra försvårande omständigheter, genom att fatta beslut om lokalisering, organisationsform och om hur resurser och institutioner ska användas
- konkurrera med andra om en andel av den marknaden.

De teoretiska definitionerna kan inkludera många aspekter av entreprenörskap men är svåra att tillämpa empiriskt. Operationella definitioner är snäva och täcker oftast bara enstaka och delvisa entreprenöriella aktiviteter, som t.ex. innovation, konkurrenskraft eller bildandet av nya företag. Att använda dessa operationella definitioner leder till vissa metodologiska problem.

Att definiera entreprenörskap som innovationer i små företag kan vara missledande. Dels kan stora företag uppvisa ett entreprenöriellt beteende, dels kan det finnas små icke-innovativa företag som är entreprenöriella i betydelsen att de reagerar på ojämvikter i ekonomin. Vidare kan det vara svårt att hitta användbara mått på innovativa aktiviteter – vare sig FoU-kostnader eller patent ger någon korrekt bild av småföretagens innovationsbenägenhet.

Det är svårt att utarbeta ett mått på konkurrenssituationen på en marknad och att mäta marginaleffekten om ytterligare företag tillkommer. Dessutom kan det vara svårt att göra jämförelser mellan sektorer och nationer. Att använda nystartande av företag som en operationell definition av entreprenörskap har oftast varit inskränkt till en given tidsperiod och primärt fokuserat på nettoskapandet av företag. Nettoskapandet av företag ger ingen information om marknadens volatilitet och dynamik och kan dölja en process av kreativ destruktion. Dessa begränsningar kan också göra det svårt att skilja på mikro- och makroekonomiska bakgrundsfaktorer.

Åtta teorier om entreprenörskap och tillväxt

Inom den ekonomiska teorin har det bildats ett antal skolor som behandlar den roll entreprenörskap har för ekonomisk tillväxt. Av dessa presenteras åtta kortfattat i denna rapport.

Den tyska skolan. Den tyska skolans främste representant torde vara Schumpeter (1934) med sin beskrivning av entreprenören som innovatör, inspiratör och pådrivare av kreativ destruktion.

Neoklassisk tillväxtteori. Enligt neoklassisk tillväxtteori begränsas entreprenörskap av perfekt konkurrens, perfekt information och rationellt beteende. Knight (1921) definie-

rar entreprenörskap som viljan att acceptera osäkerhet. Framgångsrikt entreprenörskap karakteriseras således av förmågan att hantera osäkerhet. Denna förmåga kan bestå av en intuitiv känsla eller icke-universell kunskap.

Den österrikiska traditionen. Inom den österrikiska traditionen anses kopplingen mellan entreprenörskap och ekonomisk tillväxt ligga i entreprenörens förmåga att generera personlig vinst genom att denne utnyttjar ineffektiviteter i marknaden. I denna process elimineras den utnyttjade ineffektiviteten. En sådan yttring av entreprenörskap förändrar förutsättningarna i ekonomin, vilket i sin tur genererar nya möjligheter för entreprenörskap.

Endogen tillväxtteori. Endogen tillväxtteori beskriver bl.a. vad som bestämmer investeringar i humankapital, framtagandet av nya produktionsmetoder, innovationstakten i ekonomin osv. Därigenom kan man förklara en varaktig tillväxt i produktionen per capita utan hjälp av exogena faktorer. Endogen tillväxtteori formaliserar teorier såsom kreativ destruktion, och inkorporerar exogena tillväxtfaktorer ifrån den neoklassiska teorin.

Ekonomisk historia. Inom ekonomisk historia betonas vanligtvis vikten av institutioner, t.ex. äganderätt och rättsväsende. Dessa institutioner skapar "spelregler" som avgör om entreprenörens aktiviteter riktas mot en för samhället gynnsam process. Om det finns brister i de institutionella faktorerna kan yttringar av entreprenörskap leda till egen vinning för entreprenören på samhällets bekostnad.

Industriell ekonomi. Teoretiker inom industriell ekonomi använder sig av faktortillgångar för att identifiera gynnsamma miljöer för entreprenörskap och ekonomisk tillväxt. Exempel på faktortillgångar är efterfrågeförhållanden, företagets strategi, struktur och rivalitet samt den offentliga sektorns politik.

Evolutionär ekonomisk teori. Evolutionärekonomisk teori frångår begrepp som optimering och statisk marknadsvikt. I stället antas marknadsaktörerna vara olika och besitta såväl imperfekt och asymmetrisk information om möjliga handlingsalternativ som osäkerhet om konsekvenserna av handlingarna. På marknaden belönas ett framgångsrikt beteende och en inlärningsprocess skapas. Processen kan under vissa omständigheter likställas med entreprenörskap.

Rekombinant innovationsteori. Rekombinant innovationsteori bygger på Schumpeters teori om innovationer som ett resultat av nya kombinationer av befintlig kunskap. I denna teori likställs entreprenören generellt med innovatören.

Entreprenöriella aktiviteter: konkurrens, innovation och startande av företag

I ett stort antal studier indikeras att strukturen i OECD-ländernas ekonomier förändrats. Från ekonomier dominerade av storföretag, som konkurrerat genom massproduktion och utnyttjande av skalfördelar, till ekonomier präglade av mindre, entreprenöriella företag som förlitar sig på flexibilitet och kunskapsintensiv produktion. De förklaringar som angetts för denna utveckling är exempelvis ökad global konkurrens och osäkerhet, förändringar i efterfrågan och demografiska förhållanden samt ny teknologi.

I rapporten har tre entreprenöriella aktiviteter identifierats, som kopplar entreprenörskap till ekonomisk tillväxt: *konkurrens*, *innovation* och *startande av företag*.

Konkurrens

Konkurrens kan påverka ekonomisk tillväxt på fyra sätt:

1. genom att stimulera tillgång och efterfrågan,
2. genom att säkra en högre kvalitet på kapitalinsatsvaror,
3. genom att kostnader för marknadsanalyser blir lägre och företasspecifika resurser utnyttjas bättre
4. genom att ökad rivalitet stimulerar till innovationsbeteende hos företag i samma bransch.

Avsaknaden av konkurrens kan dock också stimulera till innovationer, eftersom en innovation kan generera större vinst till innovatören. En studie av konkurrensförhållanden finner ringa belägg för att konkurrensen ökar de enskilda företagens prestationer (Nickell, 1996). Å andra sidan verkar det finnas en positiv korrelation mellan nivå på konkurrens och total faktorproduktivitetstillväxt. En annan undersökning indikerar att konkurrens ökar sysselsättningstillväxten (Acs, 1996). Konkurrens kan ta sig följande uttryck: ökad importkonkurrens, antitrustverksamhet, avregleringar, nya företagsstrukturer och minskade skalfördelar.

Innovationer

Det finns stora skillnader mellan sektorer vad gäller småföretagens betydelse för innovationsbenägenheten. Studier visar att små företag är en viktig källa till innovationer inom t.ex. dator-, elektronik-, bioteknologi-, stål- och plastindustrin (Acs & Audretsch 2001, Baldwin & Johnson 1999). Vidare anses små företag satsa på innovationer inom relativt utforskade områden, till skillnad från stora företag som koncentrerar sin forskning till mer etablerade fält. Slutligen kan det verka som om förmågan att generera innovationer är den viktigaste framgångsfaktorn för små företag.

Startande av företag

Om entreprenörskap likställs med startande av företag och egenföretagande anser man att det kan finnas två samband mellan entreprenörskap och arbetslöshet. Ökad arbetslöshet leder till ökad entreprenöriell aktivitet, i takt med att de alternativa sysselsättningsmöjligheterna blir färre, och en högre andel entreprenöriella aktiviteter leder till minskad arbetslöshet. En internationell studie om entreprenörskap, Global Entrepreneurship Monitor (2000), kommer till slutsatsen att entreprenörskap, i betydelsen av startande av företag, är den enskilt viktigaste faktorn för ekonomisk tillväxt. Betydelsen av egenföretagande som en generator för ekonomisk tillväxt och ökad sysselsättning är dock omstridd. I ett flertal empiriska studier hävdas att medan småföretag skapar en stor del av bruttosysselsättningsökningen har dessa en mindre betydelse för nettoökningen (ex. Davis m.fl. 1996, Bednarzik 2000). Orsaken till meningsskiljaktigheten kan möjligen hittas i en studie, i vilken det klargörs att sambanden mellan egenföretagande och tillväxt är starkt beroende av den statistiska beräkningsmetoden och av definitionen av företagstillväxt och storlek (Heshmati, 2001).

Sammanfattande kommentar

Slutsatsen av översikten är att teorier, som förklarar entreprenöriella aktiviteters roll för ekonomisk tillväxt, fokuserar på innovation, medan de empiriska studierna främst har koncentrerats på egen- och nyföretagande. Detta kan vara olyckligt, eftersom det ger en ofullständig och sannolikt underskattad bild av den betydelse olika entreprenöriella akti-

viteter har för ekonomisk tillväxt. Denna diskrepans torde belysa och betona att det behövs ytterligare forskning. Således kunde det vara värdefullt att studera de teoretiska sambanden mellan konkurrensförhållanden och startande av företag och ekonomisk tillväxt. Vidare råder det brist på empiriska studier av konkurrens och innovation, i synnerhet ur ett processperspektiv, men också av aktiviteternas betydelse för ekonomisk tillväxt. Vid studierna av egenföretagande har mestadels data på nationell nivå använts. Eftersom det finns stora skillnader mellan regioner vore det av värde att studera egenföretagandet på regional nivå och på klusternivå.

Om resultaten av forskningen om entreprenörskap överförs till en politisk handlingsplan vore det olyckligt att jämställa en entreprenörskapspolicy med en policy för egen- och nyföretagande. Detta skulle kunna innebära att flera aspekter av entreprenöriellt beteende förlorades, aspekter som med största sannolikhet har en positiv påverkan på ekonomisk tillväxt.

Introduction

Background

Not all economists grant the entrepreneur a central role when explaining economic growth. However, some include the entrepreneur as one of the main characters. For example, Holcombe (1998, p.60) claims that “*the engine of economic growth is entrepreneurship*”. Others, not least neoclassic economists, place the entrepreneur in the wings.

The entrepreneur is an elusive character in economic theory due to the difficulty of providing an accurate description. It appears impossible to produce a single definition of entrepreneurship and most theoretical approaches yield operational difficulties. By the same token, most operational definitions are incomplete and cover only single parts of the concept.

In a similar way, economic growth is not an axiomatic concept. It could include an increase in per capita income, an outward shift of the production possibility frontier, greater purchasing power, an increase in average living standards, a sustained rate of innovation or capital accumulation as well as a higher share of employment. Some of the definitions are found purely within the realms of economics, others have a political dimension. Among the latter there are often interrelated aspects, such as income distribution, personal freedom, peace, access to public services and equality both within and between nations.

Previous overviews on the topic of entrepreneurship include Goel (1997) who has made a comprehensive study of the entrepreneur in mainstream economic theory. Glancey and McQuaid (2000) offer a summary of how entrepreneurship is incorporated into economic and social theory. Yu (1997) presents some approaches to encompass entrepreneurship into the theoretical framework of economics. Two compendia of commonly cited articles are edited by Casson (1990) and Livesay (1995). Furthermore, Wennekers and Thurik (1999) attempt to identify the links between entrepreneurship and economic growth. The paper by Wennekers and Thurik is of particular relevance to this paper as it provides an overview of studies of entrepreneurship in economic theory. Numerous empirical studies have examined the effects of entrepreneurship, but few studies have been undertaken in order to summarise the empirical evidence and synthesise the theoretical framework and the empirical results.

The Objective of the Report

The objective of this paper is to provide a critical overview of recent empirical research on the relationship between entrepreneurship and economic growth.

Definitions of Entrepreneurship

One aspect that might initially blur the concept of entrepreneurship is that it can be defined in a number of different ways. In this section a selection of definitions are presented and discussed.

Glancey and McQuaid (2000) mention five definitions of entrepreneurship, while Wennekers and Thurik (1999) mention thirteen. For example, entrepreneurship could imply an economic function, as a bearer of uncertainty, a resource allocator or an innovator. It could also refer to particular behaviour, intrinsic characteristics, the creation of new or-

organisations or the role of an owner-manager of a company. Baumol (1993), and subsequently Dejardin (2000), stress that entrepreneurial activities can also range from being productive to society at large to searching for surplus profits with negative consequences, all depending on the structure of incentives and possibilities.

In this paper there is a focus on the economic aspects of entrepreneurship, the entrepreneur in economic theory as well as on recent empirical evidence of the economic impact of entrepreneurship on economic growth. This does not imply that other aspects, such as e.g. sociological or psychological manifestations of entrepreneurship, are irrelevant. They are merely beyond the scope of this paper. For more insights and references, consult e.g. Hébert and Link (1989).

The economic definition of entrepreneurship can be viewed from a theoretical and an operational context. Among the early theoretical definitions, Cantillon (1755) claims that “*Undertakers*” are a class of economic agents, making decisions on market transactions in the face of uncertainty. Knight (1921) defines entrepreneurship as dealing with uncertainty, making a distinction between risk, which can be calculated, and uncertainty, which cannot. Schumpeter (1934) describes the entrepreneur as the bearer of the mechanism for change and economic development, and entrepreneurship as the undertaking of new ideas and new combinations, i.e. innovations. He makes the distinction between five different manifestations of entrepreneurship (Schumpeter, 1934, p. 66), a new good, a new method of production, a new market, a new source of supply of intermediate goods and a new organisation. The role of the entrepreneur in a competitive market process is stressed by Kirzner (1973, p. 16-17):

“The ‘pure’ entrepreneur observes the opportunity to sell something at a higher price than that at which he can buy it. It follows that anyone is a potential entrepreneur, since the purely entrepreneurial role presupposes no special good fortune in the form of valuable assets. [...] The entrepreneur’s activity is essentially competitive. And thus competition is inherent in the nature of the entrepreneurial market process. Or, to put it the other way around, entrepreneurship is inherent in the competitive market process.”

Yu (1997) argues that Schumpeter’s entrepreneur, the creative destructor, prevents the economy from reaching a stationary equilibrium, while Kirzner’s entrepreneur is the one bringing the economy into equilibrium by spotting and profiting from disequilibria¹. Holcombe (1998) points out that the actions of the Kirznerian and Schumpeterian entrepreneurs are no different. Both take advantage of unexploited profit opportunities and the actions undertaken by any of them will alter the future market environment. One way of identifying unexploited profit opportunities is suggested by Runge (2000, p. 38):

“Entrepreneurship involves inter alia exploitation of differences between market-determined values and private value. Successful entrepreneurship involves demonstrating to someone else (the ‘market’) that the value attached to some private capital exceeds the value that has hitherto been appreciated.”

Vosloo (1994, p. 147) suggests that the entrepreneur might be an opportunity maximiser when defining an entrepreneur “*as a person who has the ability to explore the environ-*

¹ See also Kirzner, 1973, pp. 72-73.

ment, identify opportunities for improvement, mobilize resources and implement action to maximize those opportunities [sic.]”.

In what appears as a synthesis of the previous suggested definitions, Wennekers and Thurik (1999, pp. 46-47) suggest the definition:

“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.”*

In a previous study (Wennekers et al., 1997, p. 5) a third aspect was included as well:

“[...]”

- *compete with others for a share of that market.”*

This definition might include many of the aspects of entrepreneurship but it is not operationally applicable. Most of the aspects are hard to identify and isolate, leading to various functional definitions describing individual aspects of the concept. Quantitative studies of entrepreneurship often focus on business start-ups or innovation in small enterprises. Both these measures have several limitations.

According to Audretsch (1995), some of the shortcomings in using the measure of start-ups are methodological, i.e. only net entry of start-ups has been used and entry has generally only been measured over a single time period. Net entry gives little information on volatility and could conceal a process of creative destruction. In combination these two limitations make it difficult to distinguish between macroeconomic and microeconomic influences. Furthermore, the measure of start-ups excludes “intrapreneurship”, i.e. entrepreneurship within existing organisations, which is one of three types of entrepreneurs (Wennekers and Thurik, 1999 and Dejardin, 2000). In Table 1.1 the distinctions between the different types of entrepreneurs are presented.

	Self-employed	Employee
Entrepreneurial	Schumpeterian entrepreneurs	Intrapreneurs
Managerial	Managerial business owners	Executive managers

(Source: Wennekers and Thurik, 1999, p. 47)

Defining entrepreneurship as small-firm innovation might also be misleading. Once again, large firms might exhibit entrepreneurial behaviour. There might also be non-innovative start-ups which are entrepreneurial in the sense that they respond to disequilibria or profit opportunities. Another obstacle regarding the process of innovation is to define meaningful measures of innovative inputs and outputs, e.g. a measure using

R&D expenditures cannot account for innovation in small firms (Acs and Audretsch, 1991 and 2001).

There are numerous, at times even contradictory, definitions of entrepreneurship. Broadly, these definitions can be divided into two subcategories; those that are generally more encompassing theoretically and the more narrow operational ones. Thus, one conclusion is that it might be more fruitful to talk about entrepreneurial activities, at least from an operational point of view. The operational definitions, such as start-ups or innovative activities, each cover a limited range of entrepreneurial activities but might yield a more profound coverage in combination.

Outline of the Paper

Section 2 gives an overview of theoretical schools and their explanations of economic growth. The theories are categorised and briefly explained. Following this, in Section 3, there is a summary of empirical studies of entrepreneurship and economic growth. This serves partly as a survey of recent research and partly as a method of identifying neglected aspects of research in entrepreneurship. The findings are analysed and discussed in Section 4 and summarised in Section 5 along with suggestions for further research.

Theories of Entrepreneurship and Economic Growth

This section provides an outline of some of the basic approaches used to define the relationship between entrepreneurship and economic growth. In the first section there is an overview of some of the earlier classifications of the theoretical approaches. Thereafter, there are brief descriptions of the theories in the following sections, basically in accordance with the classification suggested by Wennekers and Thurik (1999).

Classifying the Theories

The study of entrepreneurship was central to a number of leading economic theorists in the early 20th century, then relatively neglected for some decades until it was rediscovered in the 1970s. Donald Sexton offers an account of the shifts in academic focus and advances in the study of entrepreneurship since 1980 (in Chapter 18 in Sexton and Smilor, 1997).

In a recent study, Steele (2000) raises some criticism against traditional theoretical approaches to economic growth. Dividing the contemporary account into two broad categories, mathematical macroeconomic models and institutional or historical accounts, Steele questions the underlying neoclassical assumptions of a social equilibrium and individual optimisation. Instead, economic growth is attributed to market disequilibria with entrepreneurship functioning as an equilibrating process. This view is an extension of Kirzner (1973 and 1994).

Besides Kirzner's adaptive entrepreneurship, Audretsch et al. (2001), mention Leibenstein's routine entrepreneurship, Baumol's imitative entrepreneurship and Schumpeter's creative entrepreneurship. A more in-depth presentation and analysis of this classification can be found in Yu (1997).

An alternative systematisation of the field is offered by Wennekers and Thurik (1999). They attribute economic growth through entrepreneurship to three main processes or entrepreneurial activities, enhanced competition, innovations and job growth through firm start-ups. It should be noted that these processes or activities may be overlapping, i.e. not mutually exclusive. From this perspective the foci of explanation of the different schools of thought are mapped. This is presented in Table 2.1.

In addition to the schools of growth theory studies presented in the table, the model and theory of recombinant growth could be included. This model was proposed by Weitzman (1998) and further developed by Olsson and Frey (2001). The focus of the model concerns innovation. In this study management literature perspectives on entrepreneurship are omitted.

The German School – The Creative Destructor

The German tradition with Schumpeter (1934)² and Baumol (1968) focuses on the entrepreneur as an innovator and inspirer, the implementor of creative destruction, creating instability, disequilibrium and economic development. Yu (1997) concludes that Schumpeter's objections to the orthodox system relate to the use of equilibrium models and static analysis as well as the assumptions of rational behaviour and profit maximisation.

² The importance of the entrepreneur is primarily stressed in Schumpeter's earlier work on competitive capitalism. In the later works on capitalism, large firms are seen as the vehicle of economic progress (Brouwer, 2000).

sation. Furthermore, Schumpeter (1934) argues that the risk of trying new combinations, i.e. being entrepreneurial, intrinsically falls on the capitalist and not on the entrepreneur.

Table 2.1 Assessment of the role of entrepreneurship, drawn from several fields of research

Field of literature	Specific domain	Competition	Innovation	Firm start-ups	Importance of entrepreneurship for economic growth
Historical views	Schumpeter / Baumol	++	+++	+	++
	Neo-classicals	++	+	0	+
Endogenous growth theory	Austrians	++	+	0	++
		+	+++	0	+
Economic history		++	+++	+	+++
Management literature		+	+++	++	++
Industrial economics	Porter	+++	+++	++	+++
Evolutionary economics	Eliasson	+++	+++	+++	+++

0 Not present in the writings.
 + Implicitly present in the writings.
 ++ Explicitly present in the writings.
 +++ Pivotal element in the writings.

(Source: Wennekers and Thurik, 1999, p. 50)

The Chicago School – Bearer of Uncertainty

Wennekers et al. (1997) and Glancey and McQuaid (2000) mention that under traditional neoclassical assumptions, also labelled the Chicago tradition, there are limitations imposed on entrepreneurship by perfect competition, perfect information and rational behaviour. An alternative to the latter limitation could also be the absence of time lags between decision and outcome, as suggested by Lydall (1998). The primary analytical tool of neoclassical theory is a model in which equilibrium is attainable and with an invisible hand leading the market towards equilibrium. There have been a few attempts made to incorporate entrepreneurship into the neoclassical framework. Knight (1921) defines willingness to accept uncertainty as entrepreneurship. Some intuitive ability or non-universal knowledge gives the successful entrepreneur a superior ability to handle uncertainty. Introducing Knight’s uncertainty into a Schumpeterian framework has spawned several models, e.g. Kihlstrom and Laffont (1979), Brouwer (2000) and Rigotti et al. (2001).

The Austrian School – The Arbitrageur

The peculiar characteristic of the Austrian entrepreneur is the ability to perceive profit opportunities. Kirzner (1973) suggests that the connection between entrepreneurship and economic growth is founded on the entrepreneur spotting and profiting from a situation of disequilibrium by improving on market inefficiencies or deficiencies. In an extension of Kirzner's model, Holcombe (1998) argues that these opportunities must come from somewhere, namely the insights of other entrepreneurs. Entrepreneurship creates changes, and changes lead to more opportunities for entrepreneurship. Thus, entrepreneurship generates more entrepreneurship. In a comment on Holcombe, Hülsman (1999) is critical to the notion of entrepreneurship as a perpetuum mobile of economic growth. Minniti (1999) reaches the same conclusion as Holcombe, but does also include a "network externality of entrepreneurship", i.e. a self-reinforcing culture of entrepreneurial spirit. Referring to Knight, Minniti also endows the entrepreneur with bearing some degree of uncertainty.

Endogenous Growth Theory

The basic neoclassical theory explains economic growth as accumulation of factors of production and exogenously determined changes to the economy. There have been attempts made to include the origins and causes of growth in the models. This has resulted in the endogenous growth theory. Aghion and Howitt (1998) as well as Valdés (1999) present overviews of some of the theories. Within the theoretical framework of endogenous growth, efforts have also been made in order to formalise Schumpeter's model of creative destruction and innovation as a mean of capturing monopoly profits. From this perspective endogenous growth theory can be regarded as a synthesis and extension of the German and Chicago schools.

Economic History – The Importance of Institutional Frameworks

According to Gould (1972), there has been a synthesis of economics and economic history in order to extend the static equilibrium models of economic growth and development.

In economic history institutions are often perceived as a major determinant of economic growth. According to North and Thomas (1973, p. 2) economic growth can be explained in the following way:

“The factors we have listed (innovation, economies of scale, education, capital accumulation, etc.) are not causes of growth; they are growth. [...] Growth will simply not occur unless the existing economic organization is efficient. Individuals must be lured by incentives to undertake the socially desirable activities.”

In a subsequent study by North (1990, p. 83) there is an even more explicit link between economic growth and the entrepreneur; *“The agent of change is the individual entrepreneur responding to the incentives embodied in the institutional framework.”* This is in contrast to Gould (1972) who de-emphasises the importance of the individual when analysing the history of growths and inventions.

Baumol (1993) advocates the importance of institutions for productive entrepreneurship, i.e. economic growth. He offers an account of the conditions for entrepreneurship and its manifestations throughout history, from ancient Rome and Greece to the present

time. Another approach to describing the history of entrepreneurship, also focusing on institutional settings, is offered by Cole (1949).

In a study aimed at identifying links between entrepreneurship and economic growth Wennekens et al. (1997) include a section on the role of entrepreneurship in European history. In accordance with North and Baumol, the institutional framework is here the major determinant of the manifestations of entrepreneurship.

Industrial Economics - Competitiveness

Harvard professor Michael Porter grants entrepreneurship a crucial role when considering economic growth from a national perspective (1990, p. 125-26):

“Invention and entrepreneurship are at the heart of national advantage. [...] Our research shows that neither entrepreneurship nor invention is random; assigning a role to chance does not mean that industry success is wholly unpredictable.”

The author finds a great deal of explanatory power in a number of determinants, such as factor conditions; demand conditions, the firm's strategy, structure and rivalry, related and supporting industries as well as a government function. This “diamond”, originally presented in Porter (1990, p. 127) is replicated in Figure 2.1.

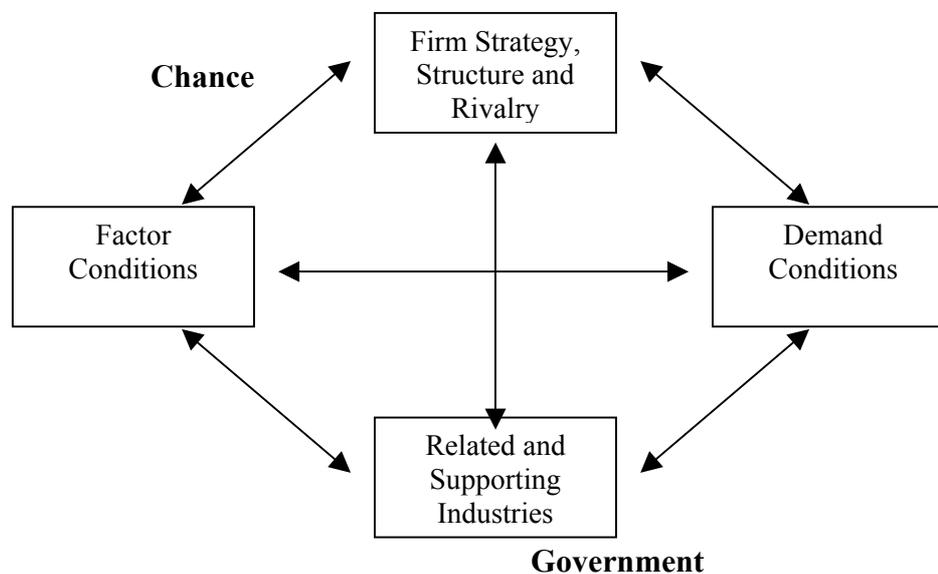
In order to gain a competitive advantage there must be an interaction between the determinants. An advantage in one single factor might not be sufficient. Wennekens et al. (1997) suggest using the model for analysing the relationship between entrepreneurship and economic growth to find out where entrepreneurship and innovation is most likely to occur.

Evolutionary Economics - Competitive Selection

Abstracting from optimisation and market equilibrium Nelson and Winter (1982) were influential in developing the school of evolutionary economics, drawing inspiration from disciplines such as Darwinism. A core concept of the theory is the notion of bounded rationality; all individuals are different and are facing both uncertainty about the possible courses of action as well as imperfect information about the consequences of their decisions. Each individual is endowed with a set of routines, which can only evolve gradually. In the market situation different routines are tested and through a process of natural selection the most suitable for the given market environment survive and achieve. Grebel et al. (2001) make an attempt to encompass the entrepreneur into an evolutionary framework. In the model each individual is endowed with entrepreneurial spirit, human capital and venture capital.

Eliasson (1994) claims that competence is the crucial factor for firm survival, competence being the ability to profit locally on internationally available technology. There are a large number of ways to solve any particular problem, and more ways the more complex the problem. Some ways are better than others but a priori the different strategies cannot be ranked. This implies trial-and-error experimentation where the learning process, i.e. the accumulation of competence, is the determinant of success. A subsequent study by Eliasson and Braunerhjelm (1998) support this by claiming that economic growth stems from human-embodied tacit competencies.

Figure 2.1 The Determinants of National Advantage



(Source: Porter, 1990, p. 127)

Recombinant Growth – The Innovator

The concept of recombinant growth is based on Schumpeter's notion on innovations as a result of new combinations. The model was introduced by Weitzman (1998) and extended to specifically explain entrepreneurship by Olsson and Frey (2001). The model by Olsson and Frey includes a combinatory process of existing ideas that take place in a multidimensional technology space where ideas are separated by technological distance. Any convexities in the technology frontier imply potential expansion possibilities of the technology set. In this model the entrepreneur is given the role of combining new ideas, and thus expanding the technology set.

Summary

It should be emphasised that the classification used in this paper is only one of several comprehensive options. The advantage of this classification is its coverage of influential theories and the wide variety of entrepreneurial functions described.

Entrepreneurial activities range from being a creative destructor and an innovator to dealing with uncertainty and spot profit opportunities. The innovating Schumpeter entrepreneur brings the economy out of equilibrium and is the catalyst for a reallocation of resources to better uses. Knight's successful entrepreneur has a special advantage when dealing with uncertainty while Kirzner's entrepreneur is skilled at spotting and making profit from disequilibria in the economy. These different aspects might have opposite effects on the market but they are not mutually exclusive per se. Due to the diametrically diverse natures of the entrepreneurial activities no attempt has been made to formulate a master theory incorporating all the various aspects.

The institutional framework is the form in which the manifestations of entrepreneurship are moulded. Imperfections in the institutions might lead to socially undesirable entrepreneurial activities.

Entrepreneurship and Economic Growth: Empirical Results

This section summarises a number of recent empirical studies covering aspects of the changing importance of entrepreneurship and its links to economic growth. The section follows the division made by Wennekers and Thurik (1999), linking entrepreneurial activities to economic growth through competition, innovation and firm start-ups. The first part discusses some of the implications of such a categorisation. The following part covers the changing importance of some of the manifestations of entrepreneurship. Thereafter, some empirical studies focusing on competition, innovation and firm start-ups are summarised. Methodological problems with the studies are discussed in the following section.

Implications of the Categorisation

Although the categorisation of the effects of entrepreneurship on economic growth is functional and intuitively appealing from a theoretical standpoint, it does imply practical difficulties. It is less than straightforward to identify an operational measure of competitive behaviour and competitiveness as well as find comparable markets with different degrees of competition. This might well be the reason for the relatively few empirical studies of the effects of competition. In a study Geroski (1994, p. 88) makes the following suggestion for a measure: *“As entry and the innovation process are undoubtedly intertwined, the effect of competition might best be measured as the joint effect of the two, in which case it is clearly substantial.”*

The Changing Role of Entrepreneurship

Looking into historical perspectives of entrepreneurship, Baumol (1993) makes two propositions. First, the rules of the game determining the payoff from entrepreneurial activity change and has been changing over time and from place to place. Secondly, entrepreneurial behaviour has been changing according to the rules of the game.

A number of studies indicate that in the OECD countries there has been a structural shift in the economies from large companies competing through mass production and economies of scale towards smaller companies relying on knowledge, initiative and flexibility. This transition from a “managed economy” towards an “entrepreneurial economy” appears to have taken place between the mid-1970s and the early 1990s (Acs, 1996 and 1999; Acs and Audretsch, 2001; Audretsch and Thurik, 1997, 2000 and 2001; Audretsch et al., 2000; Carree and Thurik, 1997; Carree et al., 1999 and 2000; Thurik, 1995; Verheul et al., 2001).

The economy, later to be labelled as managed, was characterised by *“[the] three-pronged investment in production, distribution and management that brought the modern industrial enterprise into being”* (Chandler, 1990, p. 8). The competitive advantage was in economies of scale or scope and a distributional network allowing the product to reach a large market. Thus, large firms were the engines powering the economy ahead. The entrepreneurial economy is described by a decentralised industry structure with knowledge and flexibility as key factors of production. As a factor of production knowledge is characterised by uncertainty as well as being highly asymmetric between people and costly to transact (Audretsch and Thurik, 2000).

A number of variables are assumed to have caused the transition, among them increased global competition, changes in demand and demographics, intensified uncertainty and new technologies. Various aspects and explanations are discussed in Acs (1996), Acs and Audretsch (2001), Acs, Carlsson and Karlsson (1999), Acs, Morck and Yeung (1999), Audretsch and Thurik (2000), Brock and Evans (1989), Carlsson (1992, 1996 and 1999), Carree and Thurik (1997), Carree et al. (2000), Eliasson (1994), Glancey and McQuaid (2000), Loveman and Sengenberger (1991) and Piore and Sable (1984).

Competition and Economic Growth

In an econometric study Geroski (1994, p. 88) draws the conclusion that “[c]ompetition plays a significant role in stimulating productivity, with both new firms and new ideas provoking movements to, and outwards movements of, the production frontier which, the data suggest, would not have occurred in their absence.” Furthermore, Geroski (p. 149) finds that innovative activities tend to deconcentrate markets and concludes that “it is almost certainly the case that small-firm and entrant activity drives the negative association between changes in concentration and innovative activity which appears in the data.”

An econometric study of the US telephone industry by Gort and Sung (1999) yields the conclusion that increased competition has led to greater efficiency within the industry. Gort and Sung assume that competition can affect efficiency in four ways; greater incentive to stimulate demand, higher quality of capital inputs, lower monitoring costs and greater efficiency of firm-specific organisational capital as well as rivalry stimulating innovation. Regarding the fourth effect, the authors mention that it is possible that the incentive to innovate might be greater under monopolistic conditions due to better opportunities for capturing the returns from innovation. Furthermore, monopolistic enterprises might have more resources to invest in innovation.

Nickell (1996) finds, in a study of firms based in the UK, that there is only weak empirical evidence in favour of the hypothesis that competition improves corporate performance. On the other hand, when measuring competition, as either increased numbers of competitors or lower levels of surplus profits, it appears that there is a positive correlation between the level of competition and total factor productivity growth.

In an article Acs (1996) suggests that one explanation for employment growth in the U.S. is increased competition. Manifestations of increased competition include rising import competition, anti-trust, deregulation, new structures of vertical integration and reductions in economies of scale.

Innovation and Economic Growth

The *novus ordo seclorum*, characterised by greater uncertainty, asymmetry and reliance on knowledge as a factor of production, has increased the importance of small entrepreneurial firms³. Acs and Audretsch (2001) conclude that there are significant differences in the importance of small firms regarding innovative activity across sectors. Specifically, they mention computers and process control instruments as industries where new entrepreneurial firms are an important part of the innovation process. This adds to a list of Baldwin and Johnson (1999), who mention the importance of small firms regarding

³ See Section 3.2.

electronics, instruments, medical equipment, steel and biotechnology. Acs (1996) presents an innovation measure, defined as the total number of innovations per 1000 employees in different industry sectors. Applying this measure on data on the U.S. market 1982 indicates that small firms (<500 employees) produce more innovations in the fields of electronic computing equipment, process control instruments, electronic components, engineering and scientific instruments and plastics products. Suggested explanations for the relative importance of small firms might be diseconomies of scale in the production of innovations and knowledge spill-overs.

Knowledge spill-overs are considered explicitly by Acs et al. (1993) in a study of the pattern of innovations in the U.S. in 1982. In an econometric analysis they conclude that the innovative output of small firms increase in the vicinity of universities. A similar study by Audretsch and Vivarelli (1994), covering 15 Italian regions over nine years, comes to the same conclusion.

In specific studies of the semiconductor industry through patent data between 1977-1989 Almeida and Kogut (1997) and Almeida (1999) argue that small firms tend to innovate in relatively unexplored fields of technology. In this way they differ from the large companies, which seem to concentrate their research, measured as patents, in more established fields. Rothwell and Zegveld (1982) made a study of 380 innovations made in U.S., UK, B.R.D., Japan and France between 1953 and 1973. They found that small firms contributed 31 % and large firms 54 % of all innovations. In estimating how radical the innovations were they also concluded that the entire output of small firms in UK consisted of radical breakthroughs. The U.S. small firms produced 27 % of the “radical breakthroughs” made in the country as well as 30 % of the “major technological shifts” and 37 % of the “improvement-type innovations”.

Geroski (1994) finds a strong and negative relationship between market concentration and innovation. This conclusion receives support in a study of industry innovations in 1982 by Acs and Audretsch (1991). Furthermore, the latter support the notion of two technological regimes, an entrepreneurial one and a routinised one. They note that the entrepreneurial regime, in which small firm innovation is of importance, is characterised by a relative reliance on skilled labour and that large firms control a significant share of the market. By contrast, the routinised regime is recognised as being capital-intensive, concentrated, unionised and producing differentiated products.

A study of growing small and medium sized enterprises (GSMEs) in Canada 1984-88 by Baldwin (1995) indicates that the more successful firms are on average focusing to a greater extent on innovative strategies and activities than the less successful firms. In conclusion, innovation is found to be the most important determinant of small firm success.

Industrial Structure, Start-ups and Job Creation

Audretsch et al. (2000) present an econometric study of 18 European countries indicating that there has been a reward in terms of economic growth for countries that have experienced a quicker decentralisation of their industry structure, i.e. have gained a greater share of smaller firms. This supports a study undertaken by Carree and Thurik (1997) of 14 manufacturing industries in 13 European countries. There were indications that on average, the employment share of large firms had a negative effect on growth of output 1990-1994. In a descriptive study of small business activity in Germany, Wen-

genroth (1999, p. 131) concludes that; *“Small business was the catalyst of industrial growth in providing the background of skills and services which alone made possible the mass consumption of industrial product.”*

The relationship between entrepreneurship and unemployment is studied by Audretsch et al. (2001) in an econometric model covering 23 OECD countries between 1974-1998. They find a complex relationship between the two variables. Defining entrepreneurship as firm start-ups there is both a positive effect of unemployment on entrepreneurship (the “shopkeeper” or “refugee effect”) as well as a negative relation (the “Schumpeter effect”).

The Global Entrepreneurship Monitor 2000 concludes that there is a strong relationship between entrepreneurial activities, defined as start-up activities, and economic growth. In the study this definition of entrepreneurship is claimed to constitute the singularly most important factor for economic growth. In an econometric analysis of Sweden 1976-95 Fölster (2000) finds significant support for the hypothesis that an increase in self-employment has a positive effect on overall employment.

Another study of Sweden by Lundström et al. (1993) finds that 70 % of the new net jobs are generated in the small business sector in the period 1985-89. A further emphasis is that most of the new firms are not growth oriented, but are founded on a hobby or subsistence motive. Thus, small firms are important to the economy because of their large number. Blanchflower (2000) does not support the hypothesis that increases in the level of self-employment increase the real growth rate. Furthermore, making a comparison of the level of self-employment in 23 OECD countries 1966, 1976, 1986 and 1996, Blanchflower finds that the level of non-agricultural self-employment has decreased in most of the countries.

The relative importance of small firms is not undisputed as Davis et al. (1996) and Bednarzik (2000) remark in their studies. Although important, entrepreneurship through start-ups is claimed to make a smaller contribution to job growth than expansion within existing firms in the U.S., Davis et al. draw their conclusion from a study of data from the U.S. Census Bureau during 1972-1988, whereas Bednarzik has studied the mid-1990s. Although smaller firms have a higher gross job creation rate, large firms supply more in terms of net job creation. In a comment on Davis et al.’s article, Carree and Klomp (1996) contest its conclusion, arguing that small firms created more net jobs in the 1972-1988 period relative to their employment share. Davidsson et al. (1998) empirically test the “regression fallacy”, one reason for overestimating the importance of small firms according to Davis et al. The test by Davidsson et al. covers Sweden 1989-96 and concludes that the bias doesn’t imply a qualitative change on the overall result. Baldwin and Picot (1994) have studied the Canadian manufacturing sector 1970-90 and in order to avoid a regression-to-the-mean bias three different methods of estimation are used. A consistent finding is that small firms have a higher gross volatility in job growth and destruction but also a higher net employment growth than large firms.

In a test of the growth of micro and small firms Heshmati (2001) calculates five different asset growth model parameter estimates on a large sample of firms in the county of Gävleborg in Sweden during the period of 1993-1998. The conclusion of the study is that the relationship between growth, size and age of firms is highly specific to the method of estimation as well as the functional form and definition of size and growth. This conclusion lends supports to a study of the job flow dynamics in the U.S. economy by

Acs, Armington and Robb (1999). In a regression using longitudinal data the authors find great differences in the results depending on whether mean or initial firm size was used. It is suggested that this might account for the conflicting findings regarding the relationship between net growth and size.

Kwoka and White (2001) find that there are significant variations in the share of small businesses across industrial sectors. Referring to Sutton (1998), the authors suggest that sunk costs might explain the differences but suggest further studies in the topic. The variations might also correlate with varying degrees of small firm innovation, which is described in Section 3.4 above. Furthermore, there are also claimed to be considerable differences in the share of small firms across nations (e.g. Acs 1996).

A study of job creation by Andersson and Delmar (2000), covering firms with more than 20 employees in Sweden 1987-96, produces the conclusion that the high-growth firms are under-represented in the smaller size class and over-represented in the medium (50-249 employees) size class. High-growth firms are defined as the top ten percent of job creators in absolute numbers⁴. Furthermore, the high-growth firms are primarily found in young and growing industries, such as the knowledge-intensive service-, education- and health care industries.

Using data from the U.S. manufacturing sector 1972-93 Haltiwanger and Krizan (1999) find that young firms exhibit high average net employment growth rate but also high volatility compared to mature establishments. Furthermore, among newly started firms there is no evidence of any systematic pattern by employer size of net employment growth. The conclusion is that in the context of employment growth, the age of firms appears to be more important than size, with the caveat that attributing a principal role to a single factor might be misleading.

Carree and Thurik (1997) identify a number of market conditions favouring either large or small firms. Effects stimulating largeness include economies of scale and scope as well as declining average costs with increasing experience. In favour of small firms Carree and Thurik mention that customers have a preference for minimising travelling distance when searching for supplies thereby justifying geographically dispersed small firms. Furthermore, the demand for variety creates small markets, which can only sustain small firms. Another proposed argument is that small firms might have lower adjustment costs and, finally, the effect of control by an energetic, motivating entrepreneur. A similar list of advantages of small-scale enterprises is made by Vosloo (1994). It includes advantages for small firms in developing economies, such as less capital per worker on average and “grassroot” development overcoming the lack of formal training and education. Other, more general, advantages include greater flexibility, a higher propensity of innovations per employee, higher growth and job creation rates as well as being better suited to serving limited or specialised market niches. Finally, according to Vosloo, small firms enhance political stability by strengthening middle-class influence and distributing prosperity.

Summary

A number of studies indicate that there has been a structural shift in the industrial sector towards a higher dependence on flexibility and knowledge-intensive production. In gene-

⁴ It should be noted that this measurement creates a powerful bias against small firms.

ral this is considered to have made entrepreneurial activities a more important feature of the economy. However, this is not uncontroversial.

Empirical studies show that increased competition has been found to increase employment as well as enhance growth in total factor productivity. Small firms produce a large share of the total number of innovations, given sectoral differences, and are found to innovate in relatively unexplored fields. Examples include computers, electronics and biotechnology. Innovation is also claimed to be a fundamental feature of successful small firms.

There is more controversy regarding the impact of small firms on net employment creation and as a generator of economic growth. The small firm sector is characterised by a high rate of gross job creation but also high volatility and destruction of firms. One explanation for the different outcomes in the empirical studies might be found in the different estimation techniques used. A cautious conclusion is that both small and large firms might be of importance for economic growth.

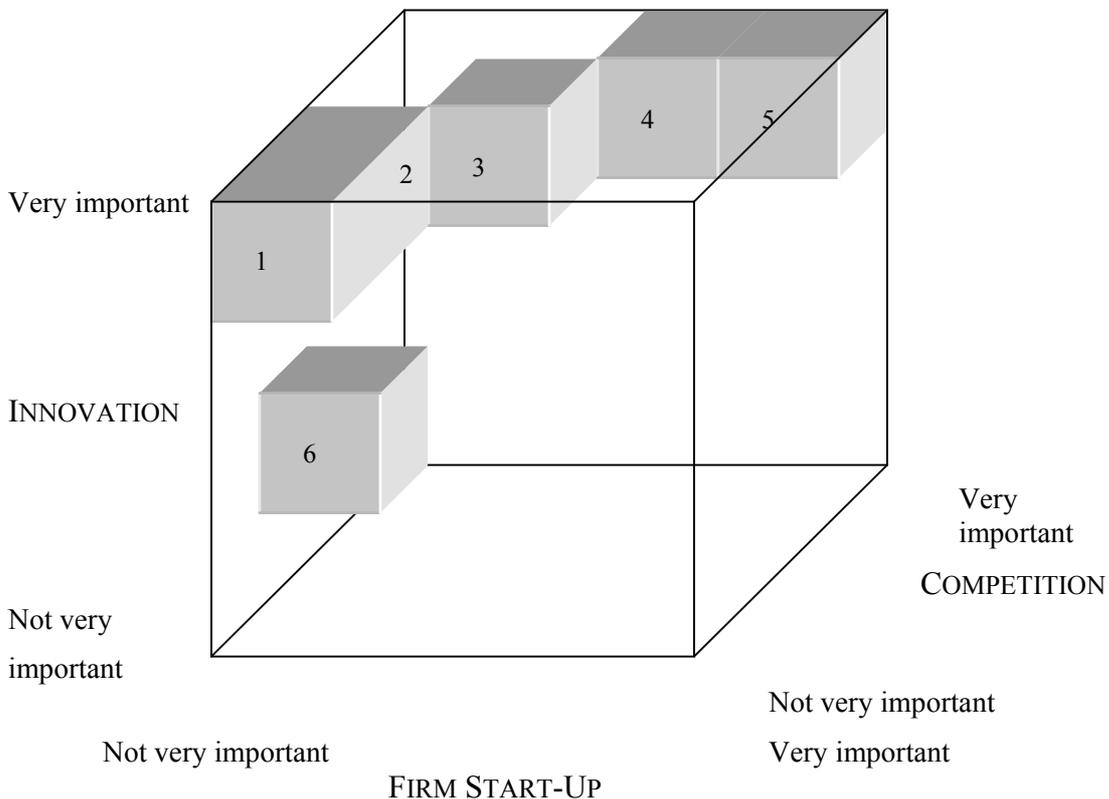
Entrepreneurship and Economic Growth: Discussion

Positioning the Theories concerning Entrepreneurial Activities and Economic Growth

Even without a generally acceptable definition of entrepreneurship it might be possible to discern a number of manifestations of entrepreneurial activity. Three of these that are assumed to affect economic growth are competition, innovation and job creation through firm start-ups. An unbalanced amount of attention has been devoted to theoretical vis-à-vis empirical treatments of these activities.

Table 2.1 demonstrates the foci of the different theories that have been used when trying to formalise entrepreneurial activity into models. This is summarised and illustrated in Figure 4.1 below together with the theory of recombinant growth. It should be emphasised that the authors could raise some objections to the ranking of the different theories as suggested by Wennekers and Thurik (1999, p. 50).

Figure 4.1 The relative explanatory power of a number of different theories regarding innovation, competition and firm start-up.



Note: (1) recombinant growth, (2) endogenous growth theory, (3) Schumpeter / Baumol and economic history, (4) industrial economics, (5) evolutionary economics, (6) neoclassicals and Austrians.

(Source: Authors' construction.)

As demonstrated the main theoretical focus is on innovation. Innovation carries more weight in theory formulations than firm start-ups or competition, which in most cases is assumed to be monopolistic competition in the context of entrepreneurship.

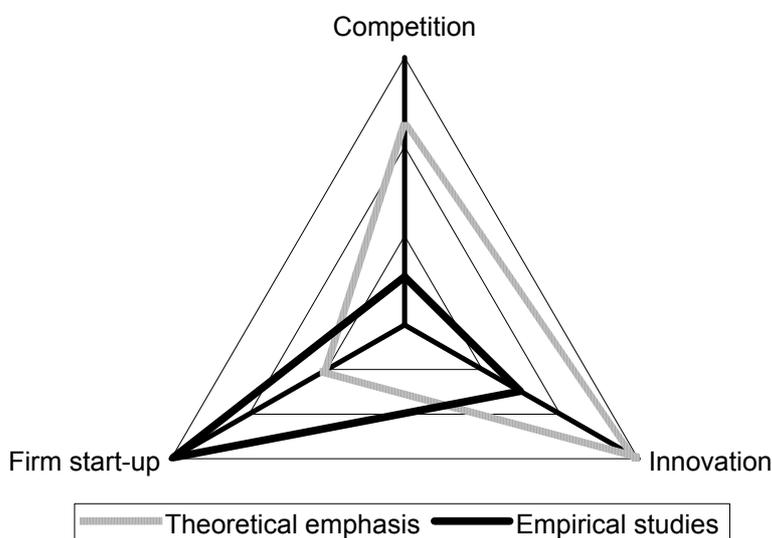
According to the ranking by Wennekers and Thurik (1999) six of the eight schools of theory have provided innovation as a “pivotal” element (Schumpeter/Baumol, endogenous growth theory, economic history, management literature, industrial economics and evolutionary economics), two include competition in this category (industrial economics and evolutionary economics) and one comprises firm start-up (evolutionary economics). Three of the theories do not consider firm start-up at all and two include it implicitly. Considering the amount of attention dedicated to firm start-up in empirical studies this discrepancy between theory and practice might be unfortunate.

A general theoretical case in favour of firm-start ups and competition can be made. Assuming that a firm population within an industry segment shows a normal distribution of success and failure, more firms entering the segment would, *ceteris paribus*, imply a higher absolute number of highly successful firms. The less efficient firms will be forced out of the industry through competition and the resources can be devoted to better uses.

The Relevance of the Empirical Studies and Methodological Problems

Regarding an operational measure of entrepreneurship, it is generally more straightforward to find statistics describing the number of firms entering and leaving the market than finding reliable data on innovation or competition. Figure 4.2 illustrates the distribution of the empirical studies scrutinised for this report as well as the theoretical focus. The outcome should not be generalised but might offer an indication of the allocation of research efforts.

Figure 4.2. The relative frequency of empirical studies and studies with a theoretical emphasis covering different entrepreneurial activities.



(Source: Authors’ construction.)

A methodological problem with most of the empirical studies undertaken in the field is the aggregate level of the data. It conceals regional differences, which are supposedly larger than the differences between countries. Concerning firm start-ups it also leads to difficulties in discriminating between the potential "gazelles", such as a biotech spin-

off, and the no-growth firms, for instance a hairdresser or a pizza baker. A process of selection might be achieved by using growing small and medium-sized enterprises, GSMEs, as a measure instead of the more conventional concept of SME. The notion of GSME is used by Baldwin (1995). Further research is desirable in order to determine its applicability and operational use.

The firm and the creation of firms have long played an ambiguous role in economic theory but have nevertheless been used as an important measure in empirical studies. Coase (1988) suggests that the function of the firm is to minimise transaction costs. In a functioning market, more firms will ensure more employment opportunities and fiercer competition.

Innovative activity is also an ambiguous unit of measurement, especially concerning small firms. Neither R&D expenses nor patents might do small firms full justice. Reasons for this might include the existence of knowledge spill-overs from universities and large corporations as well as diminishing returns to R&D, as suggested by Acs (1996). To counter this, Acs suggests using an innovation measure defined as the number of innovations produced per 1000 employees. Unfortunately, the author omits to include a definition of what constitutes an innovation⁵.

In a similar way, the degree of competition as well as its effects are difficult to measure. Nickell (1996) suggests using an increased number of firms in an industry and the level of surplus profits generated as measures of competition. Regarding an increased number of firms in an industry the picture might not be complete without some additional information about the distribution of firm size. Low or decreasing levels of surplus profits could indeed be a sign of increasing competition but it could also be the characteristics of a dying industry, the final phase in the cycle of creative destruction.

The lack of both theoretical treatments and empirical studies of the effects of competition does not imply that it is regarded as an inferior factor underlying economic growth. On the contrary, “[a] nation’s prosperity depends on its competitiveness, which is based on the productivity with which it produces goods and services” (Harvard Business School, www.isc.hbs.edu).

The conclusion appears to be that there is a lack of theoretical treatments of the relationships between entrepreneurship and economic growth through the entrepreneurial activities of competition respectively firm start-ups. Furthermore, there appears to be a need for research on firm start-ups and job creation on a regional basis. The innovative activity of small firms could also be further studied and additional operational terms could be developed. Finally, there is a void regarding empirical tests of the links between competition and economic growth, especially in the context of entrepreneurship. To use Kirzner’s (1973, p. 8) words: “*And I will argue further that the role of entrepreneurship in relation to competition has been virtually ignored.*” Kirzner aired this opinion in 1973; today the statement still carries validity.

⁵ Most likely the definition used is the one described in Acs et al. (1993), where the measure represents the number of innovations recorded in 1982 by the U.S. Small Business Administration. The sources used are technology, engineering and trade journals in each manufacturing industry. Even so, this measure does not appear unambiguous.

A final emphasis should be put on the importance of studying regions rather than nations. Aggregate studies reveal little of the enigmatic nature of Silicon Valley, Third Italy or the Gnosjö area in Sweden.

This paper was initiated by a quotation by Holcombe and thus it appears appropriate to conclude the overview by completing the circle (Holcombe, 1998, p. 58):

“The engine for economic growth is not better inputs, but rather an environment in which entrepreneurial opportunities can be capitalized upon.”

Conclusion

Concluding the Findings

The objective of the report is to provide an overview of the research on the relationship between entrepreneurship and economic growth. Entrepreneurial activities in the context of growth-related theories are presented as well as brief overviews and main findings of relevant and recent empirical studies.

There are numerous definitions of entrepreneurship describing a wide array of economic activities and functions. In this study a distinction has been made between theoretical definitions, which tend to cover a number of different aspects without being practically applicable, and operational definitions, covering individual elements of entrepreneurial activities. Entrepreneurial activities range from creative destruction and innovation to dealing with uncertainty and spotting profit opportunities. Three links are emphasised through which those activities affect economic growth, innovation, competition and firm start-ups.

Regarding the theoretical treatment of entrepreneurship, there appears to be a focus on innovative activities and a prominence of firm start-ups when it comes to empirical studies.

The German school, represented by Schumpeter, focus on the entrepreneur as an innovator and implementor of change and economic growth, destroying existing systems by imposing new ones. One of the distinguishing aspects of the Chicago school is the role assigned to the entrepreneur as dealing with uncertainty. In this view the successful entrepreneur has a special talent or exclusive knowledge that yields an advantage when facing uncertainty. The identification and exploitation of disequilibria in the market are the essential characteristics of the Austrian entrepreneur. By doing so, the entrepreneur functions as a restorer of equilibrium, enhancing the performance of the market. Endogenous growth theories are an extension of the neoclassical theory, where a number of otherwise exogenously determined parameters have been incorporated into the models. In economic history there is an emphasis on the importance of institutions for productive entrepreneurship. Entrepreneurial activities might be either productive or destructive for society at large depending on the structure of the incentives. The concepts of factor conditions used in industrial economics might assist in identifying favourable settings for entrepreneurship and economic growth. In a similar way, it might be possible to make predictions about where entrepreneurial activities are more likely to occur. In evolutionary economics there are assumptions about bounded rationality leading to more or less randomised initial manifestations of entrepreneurial activities. Through a process of learning and survival of the most successful growth is achieved. The rationale of recombinant growth is basically the opportunity of exploiting any convexities in the technology frontier in order to produce innovations through new combinations.

Recently a debate has been initiated regarding a possible shift in the structure of Industry, from large-scale, routinised production towards small-scale, knowledge-intense “entrepreneurial” production.

When it comes to the empirical studies, there is some controversy regarding the impact of small firms and start-up activities on net employment growth. Competition appears to correlate positively with both employment levels and growth in total factor productivity. Small firms are found to produce a large share of the total number of innovations but

there are significant sectoral differences. They are also found to innovate in less explored fields of technology. This involved greater uncertainty but higher potential for growth.

Suggestions for Further Research and Policy Implications

As illustrated in Figure 4.1 the theoretical approaches to linking entrepreneurship with economic growth have been skewed towards innovation. This calls for a discussion about the relationship between entrepreneurship and competition, as well as between competition and economic growth. Under favourable circumstances, firm start-ups appear to affect economic development through both job creation and increased competition, but there are still significant advances to be made in the field. Corporate entrepreneurship and intrapreneurship are other promising themes for further research efforts, both with a theoretical as well as an empirical foundation.

A great variety of the instruments and methods have been used in the empirical studies undertaken so far. It would probably be beneficial to make an evaluation of the different approaches and compare their relative performance. Such an evaluation might assist in constructing operational tools for future studies.

Figure 4.2 indicates that there is a need for further empirical tests to support the theories linking entrepreneurship and innovative activity. The correspondence between entrepreneurial activities and competition is another topic for future explorations.

One specific topic of interest would be to identify whether there is a correlation between the number of firms created as a function of the existing number of firms in a regional framework. Regional studies and cluster studies could also be undertaken to study the dynamics of the creation and destruction of firms, simultaneously studying net changes and gross volatilities. The regional or cluster perspective seems essential since there are substantial differences between regions in their ability to stimulate entrepreneurial activities. A better understanding of how different regional economic milieus influence entrepreneurial behaviour seems to be necessary in order to better understand the links between entrepreneurship and economic growth.

Finally, as guidelines for key areas of future research as well as policy making, it could be recommended that overviews should be undertaken of the literature on the interaction between entrepreneurial activities and institutions as well as on entrepreneurial regions.

If the implications of the research efforts on entrepreneurship are to be translated into policy formulation, it would be injudicious to make entrepreneurship policy equivalent to policy for small firms and firm start-ups. This would imply that several aspects of entrepreneurial behaviour would be lost, aspects that are likely to affect economic growth positively.

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ITPS, Institutet för tillväxtpolitiska studier
Studentplan 3, 831 40 Östersund
Telefon: 063 16 66 00
Fax: 063 16 66 01
info@itps.se
www.itps.se
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