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Entrepreneurship, Institutions and Economic Dynamism: Lessons from a Comparison of the United States and Sweden

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Entrepreneurship, Institutions and Economic Dynamism: Lessons from a Comparison of the United States and Sweden

Pontus Braunerhjelm and Magnus Henrekson

Entrepreneurship, Institutions and Economic Dynamism: Lessons from a Comparison of the United States and Sweden *

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Abstract: The purpose of this research endeavor—in the form of eight articles—to be published in 2013 in a Special Section of *Industrial and Corporate Change* is to further our understanding of the extent, character and orientation of entrepreneurial activity in today's wealthy countries. This is done by means of detailed studies of particular aspects of the rules of the game deemed to be of particular importance for entrepreneurship, innovation-based firm growth and its ensuing impact on the economy. Particular aspects of entrepreneurship and economic dynamism are covered by pairs (or in one case three) coauthors, who are renowned specialists in the area and with deep knowledge of the pertinent institutions in Sweden and the US. These two countries have been argued to be located at either end of the spectrum of the types of capitalism with respect to the degree coordination and government intervention. This introductory essay sets off by giving a short overview of the institutional differences that distinguish these economies, but also stresses that convergence has occurred in the last decades in several respects. Still, as is obvious from the summary of the eight comparative analyses included in the Special Section, considerable differences remain. These constitute the basis for the concluding policy discussion.

JEL Classification: O43, O57, H30, K30, L26, L53, G28.

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Papers included in the Special Section and links to the Working Paper versions

Andersson, Martin, and Steven Klepper (2013), '[Characteristics and Performance of New Firms and Spinoffs in Sweden.](#)' *Industrial and Corporate Change*, forthcoming.

Åstebro, Thomas, Pontus Braunerhjelm and Anders Broström (2013), "Does Academic Entrepreneurship Pay?," *Industrial and Corporate Change*, forthcoming.

Edmark, Karin, and Roger Gordon (2013), '[Taxes and the Choice of Organizational Form by Entrepreneurs in Sweden.](#)' *Industrial and Corporate Change*, forthcoming.

Färnstrand Damsgaard, Erika, and Marie Thursby (2013), '[University Entrepreneurship and Professor Privilege.](#)' *Industrial and Corporate Change*, forthcoming.

Gans, Joshua S., and Lars Persson (2013), '[Entrepreneurial Commercialization Choices and the Interaction between IPR and Competition Policy.](#)' *Industrial and Corporate Change*, forthcoming.

Lerner, Josh, and Joacim Tåg (2013), '[Institutions and Venture Capital.](#)' *Industrial and Corporate Change*, forthcoming.

Moretti, Enrico, and Per Thulin (2013), '[Local Multipliers and Human Capital in the US and Sweden.](#)' *Industrial and Corporate Change*, forthcoming.

Sanandaji, Tino, and Peter T. Leeson (2013), '[Billionaires.](#)' *Industrial and Corporate Change*, forthcoming.

Introduction

In order to accurately picture the modern economic history of today's wealthiest countries, one has to highlight the central role business and companies have played in their development. An entrepreneur is always a strong driving force behind the names of the companies. When the US overtook Britain as the global technology leader at the turn of the previous century, this was to a large extent associated with achievements by entrepreneurs such as Dale Carnegie and Henry Ford and by innovators such as Thomas Edison and Alexander Graham Bell. Similarly, Swedish industrialization at the end of the 19th century is associated with specific companies and entrepreneurs such as Lars Magnus Ericsson, Gustaf de Laval and the Nobel brothers.

Virtually the same story can be told today, where specific individuals can be tied to companies that have made a great difference in the postwar period. Salient examples include Bill Gates and Microsoft, Steve Jobs and Apple, Sam Walton and Walmart, the Rausing brothers and Tetrapak, Ingvar Kamprad and Ikea, Stefan Persson and H&M. All of them, or their heirs, figure prominently on the list of the wealthiest persons on the planet.¹

We side with scholar such as North (1990), Rodrik *et al.* (2004) and Acemoglu *et al.* (2005) in the view that cross-country differences in long-term economic performance are ultimately caused by differences in the rules of the game in society or the institutional setup broadly construed. The accumulation of factors of production are just proximate causes of growth, while the ultimate causes reside in the incentive structure that encourages individual effort, entrepreneurship, and investment in physical and human capital and in new technology.

Baumol (1990) pioneered the role of institutions for entrepreneurial behavior, *viz.* how “the social structure of payoffs” channeled entrepreneurship to different activities—some of which are productive, some unproductive and some destructive or predatory. If institutions are such that it is beneficial for the individual to spend entrepreneurial effort on circumventing them, the individual will do so, rather than benefiting from given institutions to reduce uncertainty and enhance contract and product quality. The outcome in this case is expected to be one where corruption and predatory activities prevail over socially productive entrepreneurship.

¹ Sanandaji (2011).

More generally, we agree with scholars like Baumol (2010), Holcombe (1998), Lazear (2005) and Carree and Thurik (2010) that entrepreneurship or the entrepreneurial function can fruitfully be seen as a distinct factor of production. The entrepreneur often “creates” the capital of the firm by investing in tangible and non-tangible assets that in time create a return, such as developing a product and building firm structures. This capital requires a continued commitment on the part of the entrepreneur. The entrepreneur is rewarded for both effort and for postponing the consumption of firm equity into an uncertain future. Successful entrepreneurial firms need several components that are hard or nearly impossible to purchase externally: product or business ideas, sufficient managerial skills to implement innovations, and commitment to exert time and effort to realize an uncertain outcome.

In reality, the interaction between various dimensions of the institutional setup and the type and level of entrepreneurial activity is highly complex and therefore difficult to disentangle. A comparison of the US and Sweden—which is our concern here—illustrates the fact that each country has its own bundle of formal as well as informal institutions that have evolved over time. The efficiency of an institutional setup hinges on the *complementarity* of its various constitutive elements (Freeman *et al.* 1997; Schmidt and Spindler 2002). Moreover, the entrepreneur is not the only agent that is of consequence for economic progress. Successful entrepreneurs who identify and exploit new ideas—thereby creating and expanding businesses—depend on a number of complementary agents, such as skilled labor, industrialists, venture capitalists and agents in secondary markets. High-impact entrepreneurship becomes impossible without these complementary competencies and inputs. Focusing solely on entrepreneurship thus abstracts from other factors necessary for an economy to prosper. Still, entrepreneurship is crucial; a lack of entrepreneurs cannot be fully offset by an ample supply of skilled labor or an extensive capital market.

Within the group of wealthy countries the factors customarily identified as crucial for development—the rule of law, reasonably secure private property rights and well-functioning financial markets²—are at hand. Thus, dwelling further on these factors is unlikely to substantively advance our understanding of the effects of institutions on entrepreneurship and innovation-based firm growth in a comparison of the US and Sweden. Yet, substantial differences prevail between Sweden and the US as well as between developed countries more

² See Rodrik *et al.* (2004) and Levine (2005), respectively.

generally, differences that can be expected to influence the level and type of entrepreneurial activities.

The purpose of the research endeavor published in this Special Section of *Industrial and Corporate Change* is to further our understanding of the extent, character and orientation of innovation-based entrepreneurial activity in today's wealthy countries. This is done by means of detailed studies of particular aspects of the rules of the game deemed to be of particular importance for entrepreneurship and innovation-based firm growth.

Such studies cannot be successfully carried out without detailed and in-depth expertise on the particular institutions and institutional differences studied. Our strategy has therefore been to compose teams of two (in one case three) researchers who are highly knowledgeable both about their theme, and about the pertinent institutions in their respective home countries. Mostly, but not exclusively, the analyses focus on Sweden–US differences, but we hope that our conclusions have wider relevance, and may be used to set the stage for detailed analyses of economic programs and policies by delineating what is unique to a particular country with respect to economic institutions and economic performance.

Economic Performance and Entrepreneurship: Sweden vs. the US

By the late 1960s the US and Sweden were arguably—together with Switzerland—the wealthiest countries in the world. At around that point Sweden began to lag behind the OECD average, and after a gradual decline lasting for a quarter of a century Swedish PPP-adjusted growth per capita slid down to 17th place among OECD countries (Henrekson 1996; Lindbeck 1997).

Eventually, the long-term decline resulted in an acute crisis in the early 1990s when public sector expansion could no longer offset the lack of dynamism and growth in the business sector. Roughly 15 per cent of all jobs were lost between 1990 and 1994, open unemployment skyrocketed from below 2 to 9 per cent, and since the number of persons receiving government aid of various sorts also exploded, government finances went into an acute crisis with total outlays around 70 per cent of GDP in 1992–93 and a budget deficit exceeding 10 per cent of GDP.

Twenty years later the roles are largely reversed. Following the burst of the real-estate bubble and the collapse of Lehman Brothers and several other financial institutions in 2008, the US economy fell precipitously, and the recovery has been sluggish at best. In 2012 the employment rate still stood more than 5 percentage points below the 2007 level, and the budget deficit was some 10 per cent of GDP. In fact, the US job machine that appeared so formidable until the IT-crash has been sputtering for more than a decade. The average number of hours worked per person of active age (15–64 years) is down 11.6 per cent—from 1,361 hours at its peak in 2000 to 1,190 hours in 2011.

Sweden, by contrast, although by no means unscathed by the global recession, stood much stronger: the unemployment rate was lower than in the US, the aggregate employment rate was higher and the government was running a surplus. Moreover, Sweden could look back at almost two decades of strong long-term growth, with average per capita growth significantly exceeding the growth rates in the OECD, the US and the European Union. As a result PPP-adjusted GDP per capita is up to 6–8th place in the OECD, the government budget is balanced and total government outlays as a share of GDP is almost 20 percentage points lower than in the early 1990s. The average number of hours worked per person of active age was unchanged between 2000 and 2011 at 1,220 hours, basically on par with the US.³

Taking a longer-term perspective, i.e. holding acute crises aside, both countries have managed to become two of the wealthiest and technologically most advanced economies in the world. Still, at least until recently the US and Sweden were polar cases in many pertinent respects: product-market regulations, wage-setting institutions, employment security provisions, the tax treatment of business income, and the size of the public sector (Freeman *et al.* 1997).

But where does Sweden stand in terms of entrepreneurial activities as compared to other countries and in particular compared to the US? Country level comparisons of entrepreneurial activities are associated with multiple measurements difficulties. Below we use the data provided by the Global Entrepreneurship Monitor (GEM) project, which are based on a carefully designed and standardized questionnaire administered in around 60 countries.⁴

³ The data presented in this and the two preceding paragraphs come from the June 2012 issues of *OECD Economic Outlook* and *OECD Employment Outlook*.

⁴ See www.gemconsortium.org for the latest reports by Kelly *et al.* (2012) and Bosma *et al.* (2012).

A first observation is that the level of Swedish entrepreneurship has been comparatively low for quite some time, with a few exceptions, such as the IT-hype in the late 1990s. According to the most recent GEM study, Sweden ranks 19 out of 23 developed countries in 2011, while the US firmly holds the first position. Throughout the period 1999–2011, rank stability has been high with few sizable shifts over the years. On average, according to the GEM data, entrepreneurship grew 22 per cent between 2010 and 2011 in the group of developed countries, but considerably more in the US while Sweden trailed behind.

To capture the motives for becoming an entrepreneur, an increasingly utilized categorization refers to opportunity- or necessity-based entrepreneurship. The former refers to pull-effects due to the identification of an entrepreneurial opportunity, whereas the latter implies that individuals are pushed into entrepreneurship due to high levels of unemployment. An overwhelming majority of Swedish entrepreneurship is claimed to be of the opportunity-based type (close to 90 per cent), while the corresponding share is somewhat smaller for the US (about 75 per cent).

New knowledge is obviously one source that can be expected to yield new and extended entrepreneurial opportunities. Even though knowledge is an elusive and multi-faceted concept, R&D is a typical measure of knowledge creation. Sweden is among the countries most heavily investing in R&D relative to GDP (3.6 per cent in 2009), only surpassed by Israel (and occasionally by Finland). Such extensive investments in R&D can thus be expected to spill over into investment opportunities in knowledge-intensive and technologically advanced operations by incumbent firms, but should also constitute a base for new technology-based ventures. However, as shown in *Figure 1*, a simple correlation between R&D-expenditures and total entrepreneurial activity does not suggest a positive relationship between these variables. The much higher total entrepreneurial activity in the US compared to Sweden is not matched by a larger knowledge base as measured by R&D. Hence, even though opportunity-based entrepreneurship dominates in both Sweden and the US, there seems to be a weak correlation between knowledge investments and entrepreneurship.

Figure 1 The relationship between the share of population (aged 20–65) involved in entrepreneurship (TEA 2011) and R&D relative to GDP (2009).

Note: TEA refers to GEM’s total entrepreneurship activity measure, consisting of nascent firms (<3 months old) and young firms (3-42 months old).

Source: Own calculations based on data from www.gemconsortium.org and OECD (2011).

A related—and from a policy perspective highly relevant—issue concerns the performance and the entrepreneurs’ expected future payoff of setting up a new firm. Regarding growth ambitions, measured as expected increase in employees five years ahead, Swedish entrepreneurs report modest plans whereas the US entrepreneurs have the most expansionist plans of all developed countries. For other performance variables, such as innovative activities and the degree of internationalization, the countries are ranked similarly (Bosma *et al.* 2012). This may seem surprising considering the larger R&D-investments in Sweden and the much smaller domestic market.

Do the differences reported above at the aggregate level also translate into similar divergences at a more detailed and disaggregated level? Some answers to this question will be given when we review the various studies below.

Is Sweden Still an Institutional Outlier?

According to several scholars there exist distinct types of market economies. Hall and Soskice (2001) identify different “varieties of capitalism”. They distinguish between coordinated market economies (CMEs) and liberal market economies (LMEs). Both types may have high incomes and similar growth rates, but CMEs have more social insurance and less inequality. Esping-Andersen (1990) instead identifies “three worlds of welfare capitalism” with the liberal US type welfare state as one extreme and the Social-Democratic/Scandinavian type at the other end of the spectrum (and the Continental European corporatist model in between).

Hence, the US is seen by many as the country where outcomes most closely approximate an unfettered market economy, while the Scandinavian countries, and Sweden in particular, are seen as the prime examples of CMEs. This alleged paradigmatic difference between the US and Sweden/Scandinavia also provides the motivation for Acemoglu *et al.*’s (2012) discussion

of “cuddly” versus “cutthroat” capitalism as responses to increased economic integration and more rapid technology transfer across countries.⁵

Still, there is reason to doubt that these distinctions are as sharp as they used to be. A major reason behind the strong Swedish growth in the last two decades was important reforms in the late 1980s, undertaken about a decade earlier in the US, and the far-reaching policy responses to the deep crisis in the early 1990s (see Bergh 2011 and Bergh and Erlingsson 2009 for details):

- 1985–93: Deregulation of the credit and foreign exchange markets; removal of all barriers to foreign ownership of Swedish firms.
- 1990: The initiation of a deregulation of markets with a state monopoly: electricity, postal services, telecommunications, railroads, taxi and domestic airways.
- 1990–91: A major tax reform lowering the top marginal tax rate from 75 to 50 per cent and cutting the corporate tax rate in half.
- 1990–97: Central bank independence and a new macroeconomic policy.
- 1991–2000: A partial or full privatization of several state owned enterprises.
- 1992: Introduction of school choice through a voucher system; vouchers are increasingly also used for child care, elderly care and other tax-financed social services as well.
- 1993: Private, for-profit employment agencies allowed.
- 1994–98: The introduction of a new, partially funded pension system with automatic balancing.
- Early 1990s: Free radio and television.
- 1995: Sweden joins the European Union.
- 1997: The introduction of a new budgetary process with upper spending limits and a law stipulating that every spending proposal by a matching financing proposal (a tax increase or a cut of some other spending).
- 1997: Temporary employment contracts allowed.
- 2001: Firms with no more than 10 employees allowed to exempt two employees from the “last-in-first-out” rule in case of redundancies.

⁵ Hicks and Kenworthy (1998) identifies Sweden as the most (and the US as the least) neo-corporatist of all OECD countries in the mid 1980s.

- 1992–: The sickness insurance, disability pensions and unemployment benefit levels have been capped at fairly low levels and qualification criteria have become more stringent through a series of changes.

Labor markets have also been thoroughly decorporatized:

- After the demise of centralized bargaining, wage dispersion began to increase among blue- and white-collar workers (Edin and Topel 1997; Davis and Henrekson 2005).
- The rate of unionization is down by some 20 percentage points for blue-collar workers since the mid-1980s.⁶
- Labor market actors have traditionally been major participants in political decision-making, but since the 1990s representatives of “the social partners” are no longer members of important government agency boards (Öberg and Svensson 2005).

The distribution of disposable income has become substantially more uneven. The Gini coefficient has increased by almost 50 per cent and the P90/P10 ratio by a third, a combined effect of increased wage dispersion, a less progressive tax system and a more uneven distribution of hours worked across households (Freeman *et al.* 2010). Still, Sweden has among the most even income distributions among developed economies.

In fact, Sweden together with the UK were the two countries that increased their degree of globalization and economic freedom the most from 1970 to 2000 (*Figure 2*).

Figure 2 Increases in economic freedom (grey) and globalization (black) between 1970 and 2000 in selected countries.

Enclosed

Source: Own calculations based on data from <http://globalization.kof.ethz.ch> och <http://www.freetheworld.com/>. See Gwartney *et al.* (2009) and Dreher (2006) for further details.

To conclude, the Swedish economy (and many other mature economies that have performed well in recent years) has been thoroughly reformed in the last quarter century, which makes the often used dichotomous characterizations of Sweden as a coordinated market economy or

⁶ Kjellberg (2001) and National Mediation Office (2012).

a “cuddly” form of market economy as opposed to a liberal/”cutthroat” market economy less relevant than before and perhaps even misleading.

This is not to deny that there are important institutional differences between the US and Sweden, differences that potentially have significant effects on entrepreneurship and innovation-based firm growth, which is our prime focus here.

R&D, Growth and Entrepreneurship

Following the seminal contributions by Lucas (1988) and Romer (1986, 1990) knowledge investment—measured as R&D and education expenditure as a share of GDP—is customarily seen as the prime driver of economic growth. This knowledge-based growth model has also greatly influenced policymaking. No doubt, the great leaps in wellbeing since the Industrial Revolution are largely based on new knowledge, new technology and revolutionary innovations. It is still the case that econometric studies of the effect of investments in new knowledge—as measured by spending on R&D-spending or education—do not unequivocally indicate that the effect is positive. A simple correlation between relative R&D-spending and economic growth for the OECD-countries since 2001 rather suggests a negative relationship; see *Figure 3*. As shown in *Figure 4* it is also not possible to detect a positive relationship between an aggregate measure of innovation (in this case the EU innovation performance index) and the annual rate of growth, albeit the time period is too short to draw any firm conclusions.

Figure 3 R&D-expenditures relative to GDP and annual growth in 33 OECD countries, 2001–2009.

Enclosed

Source: Braunerhjelm (2012).

Figure 4 EU’s innovation performance index and annual growth, 2006–2010.

Enclosed

Source: Braunerhjelm (2012).

Thus, neither the creation of new knowledge through R&D nor innovative activity *per se* seems sufficient to achieve economic growth and increased welfare. First, a large part of new knowledge is not of potential economic value. Second and more importantly, some agent(s) must distinguish the subset of economically relevant knowledge, while filtering out the rest

(Braunerhjelm *et al.* 2010), and use the new knowledge in combination with other inputs to efficiently produce valuable goods and services. But the development of a successful firm requires a number of key actors with complementary competencies who interact to generate, identify, select, expand and exploit new ideas to satisfy consumer preferences more efficiently.⁷ The entrepreneur is of course a prime agent, but also other types of agents are crucial: Innovators, venture capitalists, industrialists, skilled labor, competent customers and agents in secondary (exit) markets.⁸

It is particularly noteworthy that the introduction of new ideas into the economy and the subsequent development of the original innovations into large-scale businesses generally require two separate competencies (Baumol 2004). Sometimes the original entrepreneur evolves into an industrialist and continues to head his/her firm as it becomes larger, but more often than not, the entrepreneur will cede the top executive position to somebody with the requisite experience and competence to manage a large firm.

Successful entrepreneurship and firm growth is a function of how well these actors—with their differing skills and competencies—acquire and use their competencies in ways that make it possible to reap the benefits of the complementarities. This requires appropriate institutions that harmonize the incentives of the different types of actors. Hence, different types of skills and expertise, together with an institutional setup conducive to risk-taking and experimentation, are required to foster successful entrepreneurial ventures.

Summary of the Included Papers

Different aspects of entrepreneurship and entrepreneurial opportunities are addressed in eight articles presented in this Special Section, comparing the welfare state-oriented and the more genuinely market-oriented economy as represented by Sweden and the US, respectively. Despite covering quite heterogeneous topics, the articles can be classified into two broader categories.

⁷ To our knowledge, the idea of the importance of complementary competencies to generate growth was first recognized by Gunnar Eliasson (e.g. Eliasson and Eliasson 1996). Henrekson and Johansson (2009) explicitly use this framework to analyze the effects of a wide array of policies on high-growth firms. See also Phelps (2007, p. 553) for a discussion in conformity with our analysis.

⁸ There are several types of actors in secondary markets, notably portfolio investors in publicly listed companies, private equity (PE) firms, and management buy-ins.

The first four contributions relate to institutions and their impact on entrepreneurship; their character is more theoretical. More precisely, these contributions zeroes in on how institutions regarding competition, intellectual property rights, venture capital, commercialization of university-based inventions and, finally, taxes influence the extent and type of entrepreneurship. Some of the articles also contain empirical analyses, but the main thrust is theoretical.

The second set of articles is empirical, deploying unique data down to the individual level. Initially a comparative study of the extent and performance of spinoff firms in the private business sector is undertaken, followed by a similar analysis of spinoffs from the university sector, i.e. academic entrepreneurship. The latter study focuses on the payoff for academics that transcend into entrepreneurship. The subsequent article looks at the high-impact firms and their societal contributions as compared to firms serving primarily as a means of self-employment.

Specific Institutions and their Effects

In the article “Entrepreneurial Commercialization Choices and the Interaction between IPR and Competition Policy” Joshua Gans and Lars Persson start out from the fact that the role of the individual entrepreneur for the commercialization of inventions and innovations is increasingly emphasized in the economics literature. Entrepreneurial startups are said to offer a more innovative environment than large incumbent firms. At the same time, it has been well documented that inventions, innovations and small innovative firms are sold to larger, more mature firms. The owners of the sold firm then tend to use the proceeds from the sale to start new innovative ventures.

Gans and Persson show that a stronger intellectual property rights (IPR) increases the likelihood that the entrepreneur will sell his firm. Moreover, they show that competition law then becomes even more important in protecting the entrepreneurs from prospective large incumbent buyers that may exercise their potentially stronger negotiation position. Patent intrusion and power demonstration due to impotent competition law would also weaken incentives to invent and innovate. Thus, the protection of IPRs and competition law are complements, i.e. an increased legal protection of IPRs requires a more stringent competition law.

Their finding that the strength of intellectual property protection law and competition law may be complements from the perspective of increasing the rate of entrepreneurial innovation, indicates that the strong position of competition law in the US and the strengthening of the US intellectual property protection law over the last decades, has contributed to the strong US productivity growth in recent decades. Gans and Persson's analysis also provides support for the joint strengthening of competition law and intellectual property protection law that has been instituted in the EU. These changes give hope for a productivity increase in the EU over the coming decades as well. Yet, their analysis also shows that the devil is in the details, which makes it difficult to draw more general conclusions due to the intricate interaction between IP law and competition law, and their effect on the incentive to innovate.

The following article, "Institutions and Venture Capital", by Josh Lerner and Joacim Tåg note that in recent years a local venture capital market for equity investments in small entrepreneurial firms has emerged in a number of countries. The authors survey the literature on the connection between institutions and the functioning of local venture capital markets and also provide a case study comparing the development of local venture capital markets in the US and Sweden.

They find that that a developed venture capital market is important for providing financing for fast growing entrepreneurial firms that typically contribute substantially to innovation and growth in a country. Venture capitalist's advantage lies in their expertise in solving agency conflicts and information asymmetries that often arise in the financing of innovative, but high risk, entrepreneurial firms. The venture capitalist's experience also provides them with knowledge of how to grow firms and an extensive network of connections useful for small firms.

Lerner and Tåg stress that an active and highly competent venture capital market cannot evolve without appropriate institutional framework. Research has identified the following factors as relevant for the development and functioning of local venture capital markets:

1. A legal environment ensuring that efficient contracts between venture capitalists and entrepreneurs can be written and enforced.
2. A well-developed stock market that provides good exit opportunities for venture capital firms.

3. A tax system that favors entrepreneurial effort.
4. Labor market regulations that do not increase the cost for small firms to hire and dismiss workers.
5. A good interface between advanced university research and the business sector including public support to academic research, protection of intellectual property rights and professional technology transfer.

They apply these findings on the local venture capital market in Sweden and the US. The market emerged about 30 years later in Sweden. Reasons behind this late development likely included the lack of stock markets for small firms, a tax policy that disfavored equity investments in small firms (real effective taxes exceeding 100 per cent on entrepreneurial income) and a labor market policy making it hard for small firms to hire and fire workers. Despite the late start of the local venture capital market in Sweden relative to the US, the Swedish market really took off in the mid-1990s and has developed into one of the most active in the world. The market is still, however, small relative to the buyout market focusing on investments in later stages, which is the second most active in Europe (Tåg 2012).

In “University Entrepreneurship and Professor Privilege” Erika Färnstrand Damsgaard and Marie Thursby examine how inventions by university faculty are commercialized in two different institutional settings: the US system, where the Bayh Dole Act gives universities the right to own inventions from publicly funded research, and the Swedish system, where the so-called Professor Privilege gives the university faculty this right. In a theoretical model they show that these institutional differences are likely to give rise to more startups in Sweden, while the US system is likely to increase the rate of successful commercialization.

Contrary to the Swedish case, several European countries have in recent years given universities the right to own inventions. Thus, the US and Swedish systems differ from each other in several substantive ways. In the US, universities have developed so-called Technology Transfer Offices (TTOs) with the objective of promoting the commercialization of the inventions the university owns and to maximize revenue from these inventions. Any revenue is shared between the university and the inventor. In Sweden, on the other hand, it is up to the faculty inventor to decide whether and how (s)he wants to commercialize the invention. The inventor has the full responsibility for the commercialization and is the sole beneficiary of any revenue.

In the model it is shown that these differences in ownership may influence how an invention is commercialized and the likelihood and extent of a commercial success. Färnstrand Damsgaard and Thursby find that if incumbent firms have more experience and know-how in commercialization than startup firms, TTOs at US universities are more inclined to license the invention to an incumbent firm instead of letting the inventor start his/her own firm. In Sweden, on the other hand, inventors are more likely to start their own business. The model shows that if this is the case, the likelihood of a successful commercialization will be greater in the US than in Sweden.⁹ In contrast, if it is easier for the inventor than for the university TTO to find an incumbent firm willing to license the commercialization of the invention, the likelihood of success may instead be greater in Sweden. This could be so, since an inventor in Sweden has more property rights than their US counterparts.

Given the institutional tax setup in Sweden, Karin Edmark and Roger Gordon (“Taxes and the Choice of Organizational Form by Entrepreneurs in Sweden”) derive the effective tax rates that apply to income from closely held corporations (CHCs) and sole proprietorships, respectively. They find that owners of CHCs often face lower tax rates than sole proprietors, especially starting from year 2006, when more generous tax rules for CHCs were implemented. The results of an empirical analysis suggest that this tax difference has made business owners more prone to choose to organize as CHCs.

The Swedish small business tax rules are complicated. The main reason for this is that the policy makers want to prevent that income from labor, which is normally subject to higher tax rates, is converted into capital income which is taxed at lower rates.¹⁰ However, since 2006 a number of measures have been taken that enable entrepreneurs’ to have a larger share of their income taxed as capital income. In addition, the tax rate on such income was also lowered from 30 to 20 per cent.

⁹ The empirical results in Braunerhjelm and Svensson (2010) are in line with this theoretical result. Based on an extensive survey covering Swedish patents granted to individuals and small firms, they find better commercialization performance when the patent is licensed or sold to an entrepreneur, or if the inventor is employed in an entrepreneurial firm, compared to commercialization in the inventor’s own firm.

¹⁰ For closely held firms there are particular restrictions on the payment of dividends, the so-called 3:12 rules. These rules were introduced in 1991 to prevent owners of profitable small businesses from saving on taxes by paying themselves dividends taxed at 30 per cent rather than wages taxed at the marginal tax rate for labor income. The scope for dividend payments was therefore restricted to a relatively small percentage of the equity capital paid in by owners. The 3:12 rules also raised the capital gains tax on small businesses.

Edmark and Gordon show that these changes have dramatically reduced the effective tax rates for owners of CHCs, in particular for higher-income firms with high levels of capital and/or wage payments. Sole proprietors are not affected by these tax reductions, and as a consequence it has become more advantageous, tax wise, to run a business as a CHC instead.

Their empirical analysis suggests that this tax advantage has induced more business owners to choose to organize as a CHC instead of as a sole proprietorship. It is estimated that a 1 percent higher net-of-tax income from choosing CHC instead of sole proprietorship, gives rise to an almost 1 percentage point increase in the share of business owners that organize as CHC instead of sole proprietorship. The effect is stronger for firms with higher levels of capital and weaker for service sector firms.

One clear advantage of a CHC relative to a sole proprietorship is that a CHC is a better platform for expansion should the entrepreneur discover such potential along the way. Change of ownership is also easier when the business is in the form of a CHC, in particular if it contains an IPR of some sort.

Empirical articles

The first empirical article, “Characteristics and Performance of New Firms and Spinoffs in Sweden”, by Martin Andersson and Steven Klepper, centers on private-sector spinoffs. The purpose is to explore the characteristics of individuals and spinoff firms and their performance as compared to other firms. Sweden is one of the countries in the world where such information has been compiled in a dataset that matches employees to their employers, providing rich information on all establishments and firms in the economy and the individuals they employ. The authors exploit this dataset to identify all new firms in the private sector in Sweden for the period 1993 to 2005, as well as new establishments created by existing firms. The analysis is carried out in a way that closely follows previous studies in other countries. Hence, an additional objective is to examine the extent to which country differences can be detected. Country specific characteristics may have influenced the creation and performance of spinoffs.

The distribution of new firms suggests that the patterns in Sweden are broadly in line with those observed in other countries; annually the average annual number of pushed and pulled spinoffs together is 1,161 in Sweden, most of them (70 per cent) entered the private service

sector, and the major share of spinoffs can be categorized as opportunity-based (pull) ventures. The authors provide evidence on institutional changes and differences that tend to influence the rate and performance of spinoffs, such as labor market tenure rules and the tax system, but also the dominance of large multinational firms in the Swedish economy. Moreover, substantial differences across different categories of new firms are shown to prevail, where spinoffs systematically outperform other categories, both with regard to survival and employment growth. Spinoffs are larger on average and initially employ more advanced and experienced workers than other types of new firms. This corroborates previous results.

However, there are also marked deviations compared to other countries. First, the propensity to start firms for individuals with a degree in Science and Engineering seems weaker in Sweden, although not dramatically so. Moreover, compared to Denmark tenure is shown to have an inhibiting effect on labor mobility and hence on entrepreneurial spinoffs, which may reflect stricter labor protection rules in Sweden. Third, US data reveal that the larger the firms from which the spinoffs emanate, the worse their performance, while the opposite is true for Swedish firms.

The subsequent article, “Does Academic Entrepreneurship Pay?”, by Thomas Åstebro, Pontus Braunerhjelm and Anders Broström, examines the private financial returns to academic entrepreneurship, focusing on high-tech sectors (Health, Natural Science and Engineering). Pecuniary reward should be an important motivator for employment choices, but empirical research is scarce due to a lack of income data at the individual level. According to the authors there exists only one prior study on this topic. The current study benefits from having access to Swedish employment and tax records which allows the authors to capture returns previously unrecorded. These data are pooled with the exceptionally detailed matched employer–employee database mentioned above.

Åstebro *et al.* identify 478 individuals aged 60 or less, working at Swedish universities who quit to become full-time owner-entrepreneurs or employed in a small startup between 1999 and 2008. Approximately 0.9 percent of all academics become full-time entrepreneurs every year in Sweden. Earnings data include tax filings on wages, business income, dividends and capital gains. The average annual (total) earning is by and large unchanged as faculty staff turn to entrepreneurship. If any, the difference is negative, but only marginally significant,

and the significance disappears after controlling for covariates. There seems to be negative selection into entrepreneurship; those with lower pre-entry earnings are more likely to become entrepreneurs. Less than 1 percent obtain capital gains higher than half the average pre-entrepreneurship earnings. A large fraction, over 60 percent, quit full-time entrepreneurship within two years and 66 per cent of those return to academia. In addition, the academics also take on substantially more risk: the standard deviation of earnings is more than three times larger after becoming an entrepreneur compared to before.

Why would rational individuals choose to leave a (often) tenured position at universities, take on more risk and reduce their earnings? There are a number of conceivable explanations, one being that the investigated time period is too short or that personal consumption partly takes place within the firm.¹¹ Over-optimism may be part of the story, which is corroborated by the slow growth of firms founded by academics. Alternatively, non-pecuniary rewards weigh more heavily than economic ones. Still, it seems a fact that within a ten-year period there are no discernible economic rewards in leaving academia for entrepreneurship. The results are largely in line with previous findings for US academic entrepreneurship, but the negative effect seems larger. The authors point to conceivable future research avenues to further penetrate these intriguing results.

For an egalitarian society like Sweden, the focus of Tino Sanandaji and Peter Leeson's article "Billionaires", referring to the subset of high-performing entrepreneurs, may be of particular interest. Self-made billionaire entrepreneurs are compared with a much wider and more heterogeneous group of self-employed. More precisely, they investigate the relationship between economic development, institutions, and these two contrasting kinds of entrepreneurs. As shown by the authors, the contribution by billionaires is quite remarkable. In the US 234 billionaires in 2009 are estimated to be worth USD 718 billion collectively.

Pooling data from *Forbes Magazine's* list on billionaires with country level data from official sources (such as ILO, IMF and OECD) the authors' analysis leads to the following policy conclusions. First, self-employment may be a negative indicator of whether a country's institutional arrangements leverage entrepreneurship for economic progress. The prevalence of billionaires may be a better benchmark for policymakers considering reforms. Second, their

¹¹ That should be controlled for by the numbers provided by the Statistics Sweden, but it is hard to tell how well this is captured through the procedure of upgrading entrepreneurs' income with a factor 1,6.

analysis suggests that policymakers interested in promoting entrepreneurship as a means of fostering economic development may do best to focus their attention on the overarching institutions rather than on entrepreneurship *per se*. And, finally, in the absence of well-protected property rights and light-handed state intervention in markets, policymakers' efforts to encourage entrepreneurial activity, such as subsidizing business startups, business training/education, or subsidizing small business growth, may create a worse state of affairs from the perspective of economic development than doing nothing at all.

In "Local Multipliers and Human Capital in the US and Sweden" by Enrico Moretti and Per Thulin, the effect of an entry on local employment is compared for Sweden and the US. The objective is to quantify the long-term total change in the number of jobs in a region that can be attributed to an exogenous increase (entry) in other sectors. More precisely, the empirical analysis shows how growth of local employment in the non-tradable sector (services locally produced and consumed) is influenced by an increase of local employment in the tradable sector (manufacturing and tradable services). Furthermore, evidence is provided on how these effects vary with average levels of human capital and degree of technological sophistication of the entering unit. Also this analysis takes advantage of the detailed matched employer–employee dataset used in two of the previously described articles. Irrespective of local specificities in terms of productivity determinants, the longitudinal nature of the data allows the authors to control for such permanent differences between metropolitan areas, both in the traded and non-traded sector.

The empirical findings point to similarities as well as dissimilarities between Sweden and the US. First, sizable multiplier effects are shown to exist in Swedish local labor markets (in particular in dense city areas), albeit the average effect is smaller than for the US. Second, and consistent with US evidence, the multiplier effect in Sweden is particularly large for employers with many well-educated workers and for employers in the high-tech sector.

From a policy point of view this article relates to numerous initiatives by local and national government to engage in activities to attract businesses to their respective jurisdictions. It is then important to know the effect on local communities of a new establishment, conceivable differences across industries and how such policies can be justified on economic grounds. A comparison between Sweden and the US also highlights the effect of differences in the institutional setup, e.g. lower labor mobility, more compressed wage dispersion and more

generous public unemployment subsidies in Sweden. This is important since the magnitude of the multiplier effect crucially depends on the elasticity of labor supply at the local level.

Concluding Remarks

Today, it is fair to say that the view that good institutions are the key to growth and prosperity is the new “received wisdom”.¹² This does not mean that all puzzles are dissolved and that we know what to do to make any country more prosperous. It is fairly straightforward to identify what has gone wrong and how institutions ought to be improved in today’s very poor countries where average income is an order of magnitude lower than in the richest countries, although it is still exceedingly difficult to implement these improvements.¹³ However, the matter is much more complicated when it comes to the wealthiest countries. Per capita income is more than 50 times higher in the US than in Sierra Leone and Haiti, but if we compare the US to countries like Sweden, Switzerland and the Netherlands differences in per capita income are far smaller.¹⁴

For anyone who follows the policy debate in even the wealthiest of countries it is immediately obvious that people harbor concerns about a number of aspects where their own country is said to have weak spots. It is tempting to look for a country which is perceived to do very well on that particular aspect and argue that a certain institutional element, which allegedly causes this felicitous outcome, should be imported. Here things become more complicated; each country has its own bundle of formal and informal institutions that have evolved over time. The efficiency of an institutional setup hinges on the complementarity of various elements, and therefore an isolated and ill-conceived change in a certain element can lead to inconsistencies, making the system as a whole less efficient.

Therefore, quite a bit of caution and humility is called for. Still, there is no other way but to learn from the best *and* be aware of the difficulties involved in importing particular policies and institutions from other countries. Hence, even though it is naïve to believe that one

¹² Acemoglu with various coauthors has solidified this view in recent years, in particular with the monumental book *Why Nations Fail* (Acemoglu and Robinson 2012). See also Sachs (2012) for a critical review of the book, and Glaeser *et al.* (2004) who claim that economic growth and human capital accumulation precede institutional improvement.

¹³ As shown by North (1990) and Easterly (2001), copying institutions without adapting them to the local context, is rarely a successful strategy.

¹⁴ US PPP adjusted income per capita in 2010 was identical to that in Switzerland and 19 and 10 per cent higher than in Sweden and the Netherlands, respectively (OECD, *Main Economic Indicators*, Vol. 2012/2).

country can imitate and import ready-made institutions from other countries, there is room for learning, adoption and adaptation.

The above described contributions have highlighted a number of important institutional differences potentially important for economic performance and prosperity. First, the effect of institutions on entrepreneurship and innovation hinges on a coherent design over different policy areas. For example, strong intellectual property rights may not yield the expected results unless supported by adequate competition policies. Second, the functioning of venture capital in propelling entry, innovation and growth is critically dependent on the legal environment including contract law, taxes and employment legislation. Tax transparent organizational forms should be introduced in Sweden that large international investors are comfortable with. Setting up government-backed VC funds is not an alternative to inferior institutional conditions. Taxes on stock options are prohibitively high in Sweden, effectively barring their use as an instrument to foster innovation and firm growth.¹⁵

Third, the societal impact of faculty inventions (individually or by the university) stems from how a country's system has evolved over time and the evolution of other complementary institutions, not whether ownership of inventions belong to the university or the faculty. In the case of Sweden, complementary institutions need to be developed rather than just transferring property rights to the university. One potential candidate is the tax treatment of stock options referred to above. Fourth, the type and form of entrepreneurship is heavily dependent on the tax system, tax arbitrage may be one reason to set up a firm. Fifth, the importance of entry in magnifying local demand and beneficial spillover effects implies that the labor market needs to be flexible, housing markets well-functioning and public infrastructure investments sufficient in order for society to reap the full potential of agglomeration effects.

Sixth, incentives, but also labor mobility, are important to trigger spinoffs from the business as well as the academic sectors. Finally, high-impact entrepreneurs are important and generate substantial spillover effects. Rather than targeting small firms to compensate for their inherent disadvantages—a motivation for many policies in recent decades—measures should be directed towards providing a framework for fostering a dynamic economy conducive to high-

¹⁵ For employees stock options are taxed as labor income and subjected both to mandatory social security (32 percent). Since the marginal tax rate is roughly 57 percent this entails a total tax rate of roughly 67 percent, which is prohibitively high (Bengtsson *et al.* 2013).

impact entrepreneurship. Focus should thus be on the *bundle* of policies that ensures that people can start new ventures, develop these ventures into high-impact firms, and expand existing ventures to their full potential.¹⁶

Yet the entrepreneur is not the only agent that is of consequence for economic progress. Successful entrepreneurs who identify and exploit new ideas—thereby creating and expanding businesses—depend on a number of complementary agents, such as skilled labor, industrialists, support services, venture capitalists and secondary markets. Focusing solely on entrepreneurship, abstracts from other factors necessary for an economy to prosper. Still, entrepreneurship is crucial; a lack of entrepreneurs cannot be fully offset by an ample supply of skilled labor or an extensive capital market

The main message of this introduction and the set of articles included in this Special Section is that analyses of entrepreneurship should be conducted through the lens of the institutional setup. Few, if any, societies have managed to completely quell the individual's innovativeness and pursuit of personal gains. However, there are large differences as to whether and to what extent societies have managed to gain rather than lose from these human traits. Although we may be fairly confident that these differences have a great deal to do with institutional differences, on the more detailed level we still know fairly little about how these effects are borne out, and how entrepreneurs would react to specific institutional changes, let alone when and how entrepreneurial effort is expended to induce institutional change.

We sincerely hope that the collection of studies in this Special Section gives both inspiration for further research and some guidance for policymakers as to how the economic system could be reformed in order to reap more benefits from R&D and other knowledge creation.

¹⁶ This does not preclude the prospect of an entrepreneurial venture being sold to an incumbent fairly quickly. The full potential of a business idea is often more likely to be realized if it is sold to an established business with the requisite know-how and financial strength (Norbäck and Persson 2009).

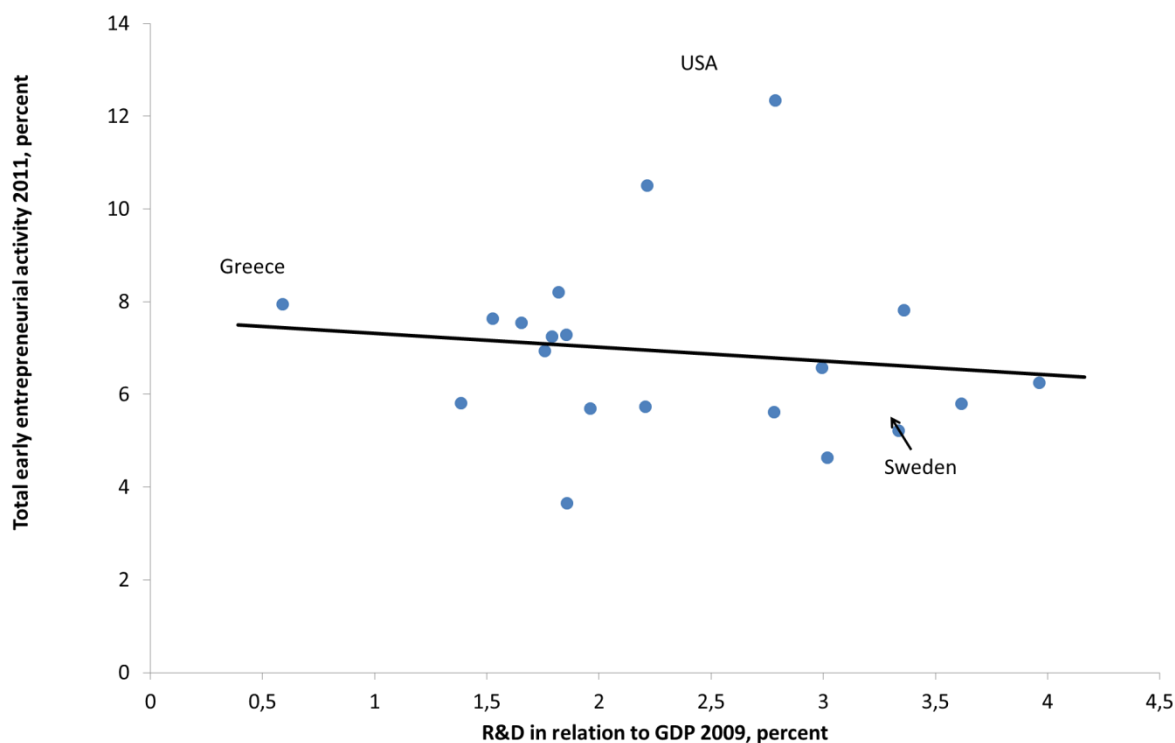
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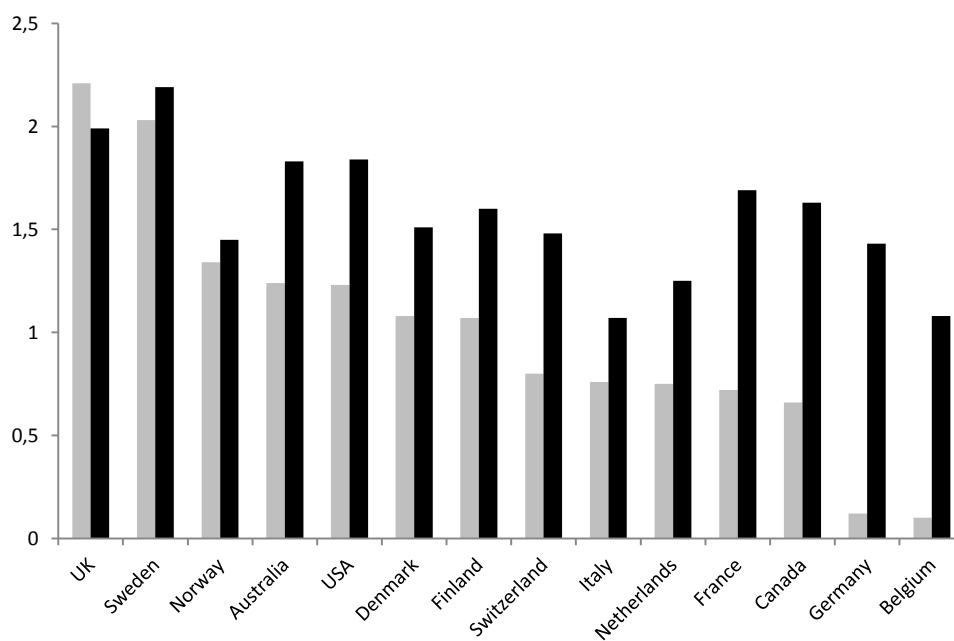
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Figure 1 The relationship between the share of population (aged 20–65) involved in entrepreneurship and R&D relative to GDP, 2009.



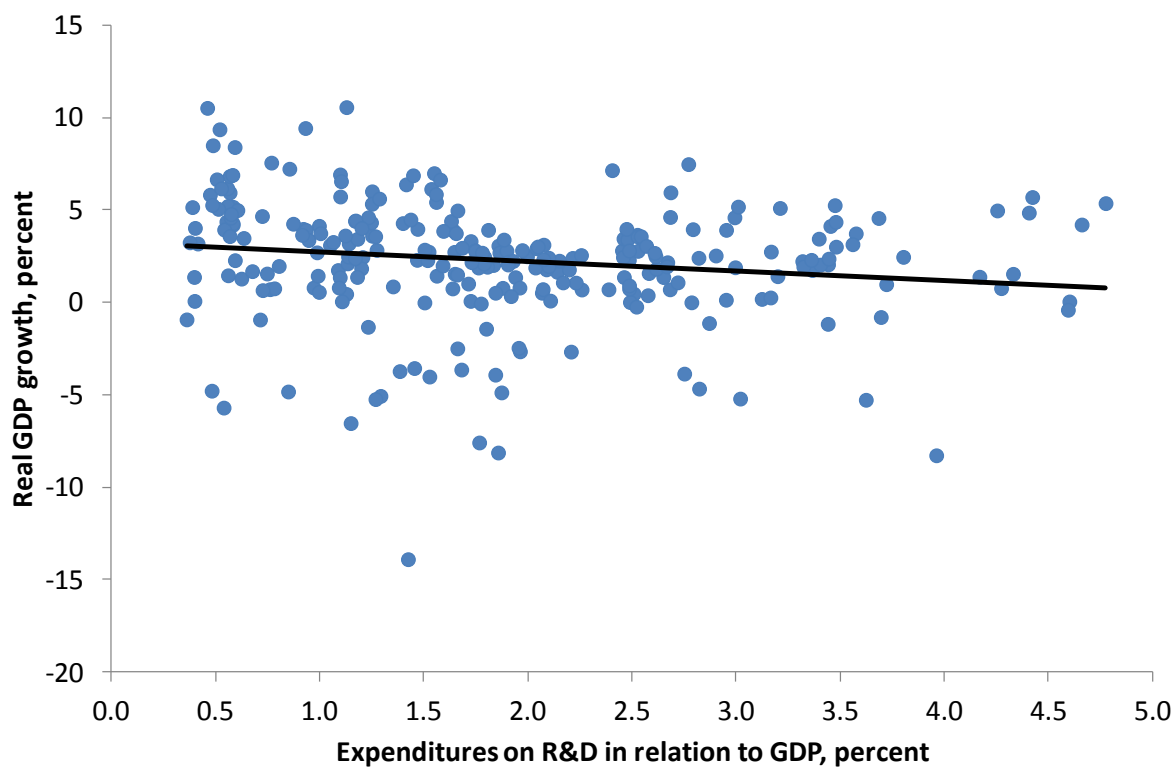
Source: Own calculations based on data from www.gemconsortium.org and OECD (2011).

Figure 2 Increases in economic freedom (grey) and globalization (black) between 1970 and 2000 in selected countries.



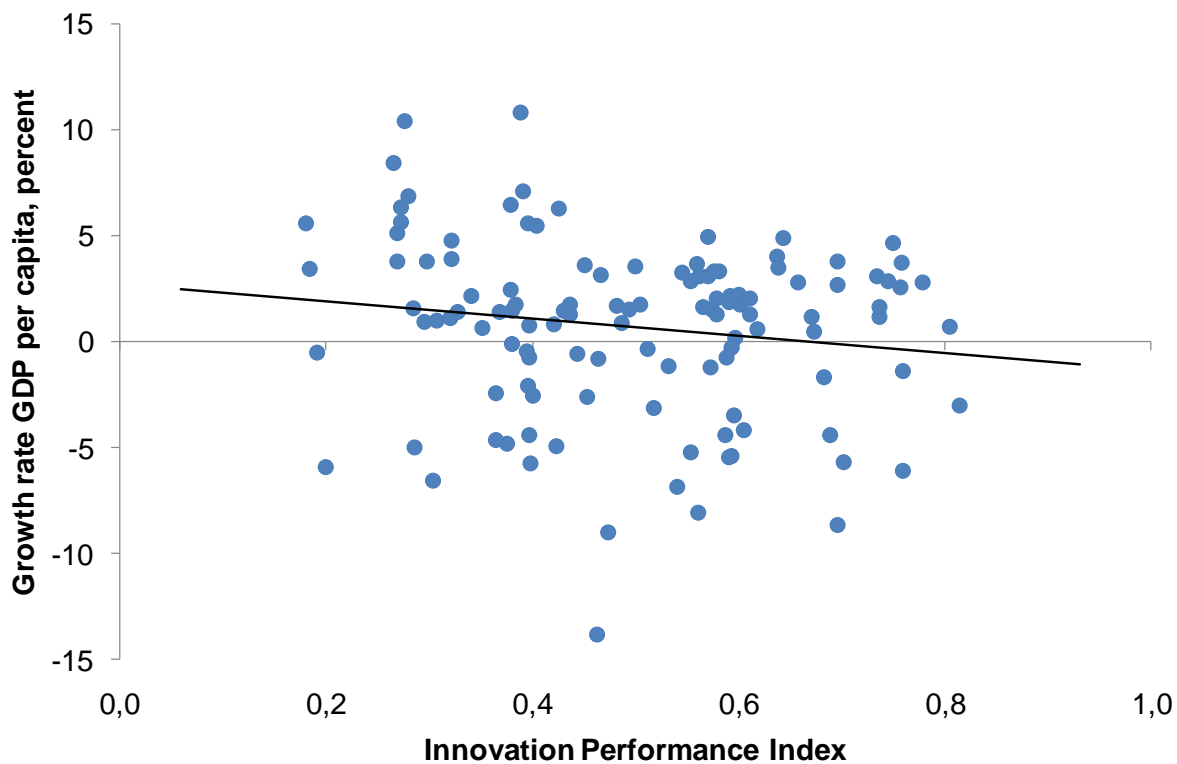
Source: Own calculations based on data from <http://globalization.kof.ethz.ch> och <http://www.freetheworld.com/>. See Gwartney *et al.* (2009) and Dreher (2006) for further details.

Figure 3 R&D-expenditures relative to GDP and annual growth in 33 OECD countries, 2001–2009.



Source: Braunerhjelm (2012).

Figure 4 EU's innovation performance index and annual growth, 2006–2010.



Source: Braunerhjelm (2012).