

## Taxation, Institutions and the Agents of Economic Growth

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Research has shown that the introduction and protection of private property rights has been crucial for the success of a country in creating economic growth and general prosperity. However, the mechanisms through which private property rights lead to growth have not been fully elucidated. We present a theory – the theory of the competence bloc – that links growth to property rights. According to this theory growth is a result of the perpetual creation and use of new productive knowledge, i.e. innovations. This takes place within the framework of the competence bloc, which defines the smallest number of economic actors with different but complementary competencies that are required in order to generate, identify, select, expand and commercialise new knowledge (innovations). The competence bloc includes, for example, entrepreneurs, industrialists and venture capitalists. The competence is human-embodied and growth is therefore dependent on the acquisition and utilisation of productive knowledge by individuals. The willingness of individuals to do this is determined by incentives forged by the rules of the game in society – its institutions. The paper contains an analysis of the ways in which the tax system can be expected to influence the incentives for innovations, entrepreneurship and firm growth. Our analysis suggests that a greater degree of success in the commercialisation of research and development can be expected if a number of adjustments are made to tax levels and tax structures that stimulate the emergence of more effective competence blocs.

Why are some countries rich and others poor? This question has been analyzed by economists ever since the founder of modern economics, Adam Smith, posed it in 1776, over 200 years ago. Smith answered the question chiefly by giving prominence to the division of labor. Pro-

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ductivity in a country increased if individuals specialized in performing different tasks. This had the effect that each individual became increasingly skilful in performing his/her work and therefore could produce an ever-increasing amount in the same period of time. Productivity and prosperity increased.

Current research has, in the first place, supplemented this explanation with an emphasis on knowledge and the acquisition of knowledge in a wider sense of the term, for example research and development. Secondly, research and practical experience has shown that the emergence (and protection) of private property rights is a prerequisite for sustained economic growth (North and Thomas 1973; Rosenberg and Birdzell 1986; Mokyr 1990; Jones 2001; de Soto 2001; Baumol 2002). The countries (or civilizations or regions) in which private property rights have been protected and respected have prospered, while other countries have become or have remained poor. According to this research, this explains why Western Europe, which was lagging behind, took the economic, technical and political lead over the Chinese and Muslim empires, which were much more advanced in terms of knowledge and technology. These conclusions have been reinforced with the demise of the Soviet Union and the collapse of the planned economies.

Institutional theory draws the conclusion that economic growth is a result of entrepreneurial acquisition of knowledge and action conditioned by the rules of society – its institutions in the wide sense of the term (Kaspar and Streit 1998). In this paper growth is analyzed as a process of acquisition of knowledge and entrepreneurial action guided by the rules governing the agents in the economy. First, we present the theory of the competence bloc, which extends the analysis to include agents other than entrepreneurs, notably industrialists and venture capitalists. Then we examine how the Swedish tax system affects the incentives for labor, entrepreneurship, business formation and firm growth. We focus on taxes since they have a major influence on the rate of return on investment and human actions, particularly in a high tax country, and therefore can be expected to have important effects on economic growth and renewal.

### **Economic growth and the competence bloc**

It is well known that economic growth can arise as a consequence of increased use of production factors, such as labor and capital, increased productivity or a combination of these (Solow 1956). History has shown that increased productivity is the main driver of economic growth. In turn, higher levels of productivity result from the creation and use of new knowledge – knowledge of the ways in which the goods and

services demanded by consumers can be produced more and more efficiently (Hayek 1937, 1945; Romer 1990).

Identifying and implementing a business idea in a market economy means applying new knowledge about ways in which productivity can be enhanced. All else equal, a productivity increase boosts the return to the factors of production. The increase in returns accrues to the production factor or factors that are residual claimants, i.e. as a rule the equity owners.. This provides a signal to expand and further develop the activity in question. Expansion also leads in turn to a situation in which remuneration to labor (and other production factors) is driven up. In the long term, all factors of production obtain a share of the increase in productivity.

In the Schumpeterian tradition, for example, a distinction is made between having a new idea (an invention) and introducing it into the economy (an innovation).<sup>1</sup> Schumpeter distinguishes between five different types of innovations (Schumpeter 1911/1934, p. 66):

- 1 The introduction of a *new good* or of a new quality of a good.
- 2 The introduction of a *new method of production*, i.e. one not yet tested by experience in the industry concerned.
- 3 The opening of a *new market*, i.e. a market into which the particular industry of the country in question has not previously entered, whether or not this market has existed before.
- 4 The introduction of a *new source of supply* of raw materials or intermediate inputs, irrespective of whether this source already exists.
- 5 The carrying out of a *new mode of organization* of an industry, like the creation of a monopoly position.

Technical innovations are usually emphasized as being particularly important for growth. Therefore, economic policy often focuses on directly stimulating these innovations. This is likely to be insufficient from the perspective of economic growth. Technological development is a result of human creativity and thus a result of the ways in which individuals are organized in enterprises and communities. Organizational innovations may dominate technological innovations and in those cases they become a prerequisite for the latter. Naturally, there is a form of interplay here – technological innovations and scientific breakthroughs with commercial potential

<sup>1</sup> Thus, an innovation can be regarded as an introduction of new knowledge into the economic system.

make it necessary for the institutions of society to be sufficiently flexible so that they can be adapted to new circumstances (Myhrman 1994, chapter 2). The studies of economic history referred to above lead to the same conclusion. Despite the fact that China was considerably more technically advanced than Europe 1000 years ago, the West not only caught up, it also took the lead. The crucial institutional factor behind this reversal of technological and economic leadership was the (gradual and by no means complete) introduction of private property rights in Western Europe. The introduction of private property rights was thus an organizational innovation of extraordinary material significance.

According to the theory of the competence bloc, the creation and application of new knowledge that increases the productivity of enterprises (and, in extension, the growth of nations) is a complex process. If knowledge gives rise to large-scale industrial and economic growth, it is essential to have a network of agents who possess different but complementary competencies that interact in order to generate, select, exploit and expand innovations. This network may be called a *competence bloc* and contains at least eight types of economic actors:

- 1 *Competent customers*. In order to produce a product that customers are prepared to buy, it is necessary to have information on customer needs. Competent customers assist in designing the product in such a way that it becomes attractive. They can assist in both product development and financing. It is important that enterprises collaborate with the “right” customers – a product will never be better than the customers’ demand. One common error in economic policymaking is when the government tries to stimulate firms and technological change by means of subsidies. This increases the tendency among entrepreneurs and firms to develop commodities that satisfy the government agency granting the subsidy rather than satisfying the needs of the customers (cf. Rylander 1995).
- 2 *Inventors*. Inventors solve individual (technical) problems.
- 3 *Innovators*. Innovators hold major projects together and integrate different technical solutions into a workable product. The innovators can largely be regarded as administrators and as having the main responsibility for major projects.
- 4 *Entrepreneurs*. Entrepreneurs identify different business ideas and organize their introduction on to the market.
- 5 *Industrialists*. They manage the expansion of enterprises and further develop original innovations into large-scale activities. They are therefore of key importance for the growth of both individual firms and the economy as a whole. The compe-

tence bloc thus makes a distinction between the entrepreneurial competence of identifying and introducing innovations and the industrial competence of developing the original innovation into a large-scale business. Compared to Schumpeter this is an extension based on empirical experience, which has shown that starting up an activity and its subsequent development generally requires two separate competencies. The entrepreneurs certainly have the ability to identify new business ideas and to establish new firms, but often lack the ability to develop the activity into a large-scale enterprise.

- 6 *Skilled labor.* This is a prerequisite for all economic activity. Rapidly growing activities are often inhibited in their expansion by the lack of certain professional categories. The educational system is of decisive importance for the supply of labor with the right professional skills.
- 7 *Venture capitalists.* They fill several important functions. First and foremost they put a price on projects and enterprises in early stages of development. This involves setting a price that is neither too high (which would lead to an excessive return on poor projects) nor too low (which creates poor incentives for good projects). One important part of this function is to make an assessment of the skills of entrepreneurs and management – venture capitalists can be said to identify and make selections between different entrepreneurs. Moreover, they contribute not only by financing, but also by management skills, marketing expertise, sector-specific knowledge and networks. They supply the enterprise and the entrepreneur with *competent* capital. Incompetent capital, on the other hand, often has devastating effects on enterprises and economic growth. If the financiers lack economic competence, the firms may be harmed by their influence. In this respect, a market economy is self-regulating, since incompetent financiers receive low returns on their capital and are therefore put out of business in the long run. Mismanagement on a large scale thus requires actors that are not subject to the normal rules of a liberal market economy. The most common example of this is when the state acts as the financier and decisions on financing are governed more or less by political motives.<sup>2</sup>
- 8 *Actors on secondary markets.* These actors have similar skills and fill functions similar to venture capitalists. The actors on secondary markets enter the picture at a later stage in the development process of a business, when the venture capital-

<sup>2</sup> In line with this it has been shown that the state has been one of the largest suppliers of incompetent capital. For example, the state financed companies in the shipbuilding industry with *negative* value added with tens of billions of Swedish kronor (Carlsson 1983). Bergström (2000) found that government regional support had a *negative* effect on the employment and productivity of firms that received the support. ITPS (2004) report similar negative effects from the EC's regional support schemes. Svensson (2004) finds that government loan financing granted to owners of patents reduced the probability of commercialisation.

ists want to exit their investment. They make assessments of the value of enterprises, supply capital and evaluate the owners' skills in different enterprises. If an enterprise is mismanaged, or if it can be more skillfully managed, actors on the secondary market will buy the enterprise and appoint a new management better equipped to lead it.

Since the number of possible innovations is extremely large and each actor or group of actors in the competence bloc is "boundedly rational",<sup>3</sup> no one can have perfect information, i.e. know everything about everything that is relevant in the context (a standard assumption in the earlier basic economic decision-making model). In other words, it is impossible to be able to assess the value of an innovation with certainty *ex ante* (before it is implemented). Every innovation can thus be described as a business experiment that is tested by the market (Eliasson 1996).

A competence bloc can be regarded as complete when the risks for type 1 and type 2 errors are minimized (Eliasson and Eliasson 1996). In this context a type 1 error means that potentially successful projects are eliminated and a type 2 error means that poor projects receive financing for an excessive period of time. This requires both "breadth" (that all the requisite actors in the competence bloc are involved) and "depth" (a critical mass of actors to fulfill each function). Economic growth can be looked upon as a chain of events from the original invention, its introduction on the market, to large-scale entrepreneurial activity emanating from the invention. The actors in the competence bloc play a decisive role in each link in the chain. Like the chain, growth is no stronger than its weakest link. It is sufficient that one of the functions in the competence bloc is lacking or functions poorly for growth to suffer.

### Tax wedges on labor and capital

The decisive factor for the emergence and operation of different competence blocs is the incentives given to its respective agents. The incentives determine whether a sufficient number of individuals acquire the skills that are necessary for the competence bloc to be complete. The incentives also determine how the actors function in the competence bloc and thus the effectiveness of the competence bloc. In this respect the tax system plays an important role, since it is of considerable importance for the returns on the activities of the different actors.

<sup>3</sup> The concept *boundedly rational* was coined by Herbert Simon, see for example Simon (1955, 1990). It is based on the fact that the human brain has limited capacity to analyze and act on the basis of information. No matter how intelligent a person may be, her ability to process information is extremely limited. This has the effect that only a very small amount of existing knowledge may be handled. Instead of acting as rational calculators with perfect knowledge, which at that time was a standard assumption in the choice-theoretic model, people tend to let their behavior be governed by rules of thumb, customs and habits and generally the outcome of this is relatively good. See also Martens (2004).

The scope of this paper is too limited to provide a comprehensive study of how the tax system has impacted on the incentives of all agents in the competence bloc. We have therefore limited our study to the tax wedges on labor (labor tax wedges) and on individually-owned enterprises (capital tax wedges), and, following that, to a discussion on the effects of the tax system on the actors in the competence bloc.

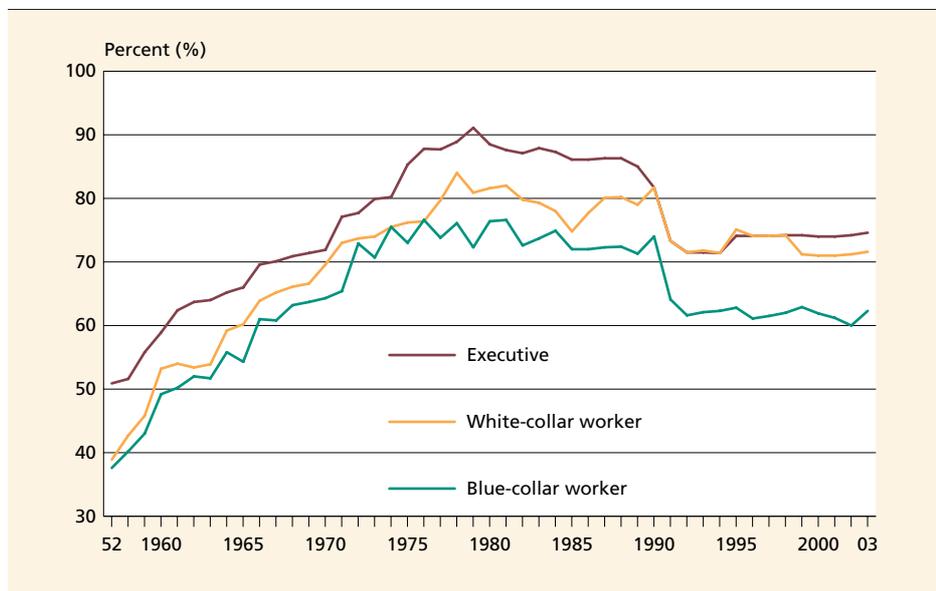
The tax wedge on labor income describes the total effect of taxes and other mandatory contributions on the income earned from work on the margin. It includes both employers' contributions and the employee's income tax. The capital tax wedge measures the proportion of the return on an investment that is paid in tax. The labor tax wedges were calculated for the period 1952–2003; the capital tax wedges for the period 1970–2003. We have chosen to use tax wedges instead of more conventional tax measures such as the highest marginal tax rate or the nominal corporate tax rate. The reason for this is that the effect of the tax system can be expected to depend on the combined effect of all types of taxes. The tax wedge is an unusually good, if still imperfect, indicator of the combined effect.

Figure 1 shows the labor tax wedge for an industrial worker, a white-collar worker and an executive for the period 1952 to 2003. The tax wedge of the blue-collar worker and the white-collar worker was less than 40 percent at the beginning of the period. It then increased substantially and in the 1970s and 1980s it was roughly 75 percent for the blue-collar worker and 80 percent for the white-collar worker. The tax reform of 1990/91 reduced the tax wedges and at the end of the period they amounted to slightly more than 60 percent for the blue-collar worker and slightly more than 70 percent for the white-collar worker.

The executive's tax wedge has exceeded that of the blue-collar worker throughout the period, and considerably so during the latter part. In 1952 it was slightly more than 50 percent. It then increased steadily up to the beginning of the 1980s when it reached a peak of more than 90 percent. Thereafter it decreased slightly and it was 85 percent at the end of the 1980s. The tax reform of the 1990s reduced the tax wedge to just over 70 percent. A raise of the highest marginal tax rate in the mid 1990s then increased the tax wedge to approximately 75 percent.

The executive's tax wedge is the most relevant one if we want to examine the incentives for acquiring a high-quality education, improving one's situation at work, taking on more responsible tasks etc. It is clear that the tax system has weakened the incentives for these purposes for a long period of time. The high taxes on labor have also reduced the scope for increased division of labor. It is difficult for a person to buy personal services when labor taxes are high. It is therefore difficult to commer-

FIGURE 1 Labor tax wedges in Sweden, 1952–2003



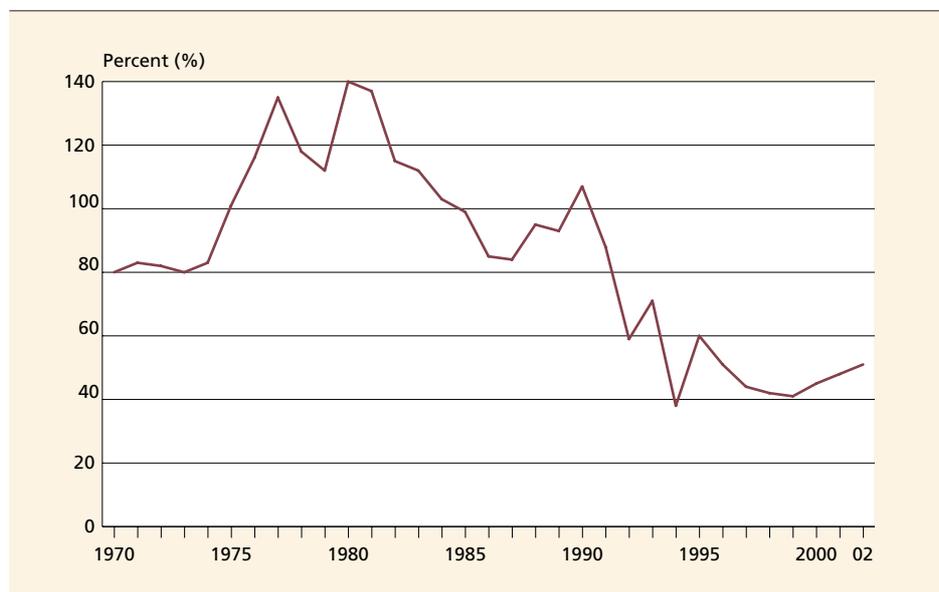
Note: The blue- and white-collar worker are defined, respectively, as an average male blue- and white-collar worker in the private sector. The executive is the director of finance in a large firm (median salary for position type 9002 up to 1990). After 1990 it is assumed that the salary of an executive increased at the same pace as that of the white-collar worker. The marginal taxes refer to single persons without children and employers' contribution refers to all mandatory contributions apart from those pertaining to the executive where account has been taken of previous ceilings on contributions (abolished in 1976 and 1982). Indirect taxes are gross excluding property tax. The calculations include average deductions granted for debt service and other tax-deductible expenses: 11 percent for the white-collar worker, 16 percent for the executive and 0 percent for the blue-collar worker for all years. Travel expenses have been calculated at 1.5 percent of the salary, and other tax-deductible expenses at 0.5 percent. No account has been taken of the value of fringe benefits for tax assessment purposes in the employers' contributions. The tax wedge is defined as  $1 - [(1 - t_p)(1 - t_m)(1 - t_c)/(1 + t_e)]$ ; in which  $t_p$  is the pension contribution,  $t_m$  is the marginal tax in the income tax (excluding national insurance contributions),  $t_c$  is the consumption taxes defined as the total of value added tax and selective excise taxes as a percentage of the price of the good or service and  $t_e$  is the employers' contributions.

Source: Calculations made by Gunnar Du Rietz, see Johansson (2004).

cialize many services, and entrepreneurial product and organizational development, particularly in many service sectors, will be seriously hampered or never even be considered (Davis and Henrekson 2004; Du Rietz 2004).

The capital tax wedge has been calculated for an “entrepreneur-led” family enterprise (i.e. a closely held company) with eight employees, which had a capital value of SEK 13 million in 2003. The salary paid by the enterprise to the entrepreneur has been set to SEK 450 000, which corresponds to the annual income of an executive. The real rate of return before tax is assumed to be 10 percent per year. This means that the nominal rate of return varies between 10 and 24 percent. 30 percent of the profits are distributed while the remainder, after payment of corporate tax, is reinvested in the enterprise (with a 10 percent real rate of return). The capital value and

FIGURE 2 Capital tax wedge in Sweden, 1970–2002



*Comment:* See main text for a definition of the capital tax wedge.  
*Source:* Calculations made by Gunnar Du Rietz, see Du Rietz and Johansson (2003).

the salary paid to the entrepreneur are assumed to be unchanged in real terms during the period.<sup>4</sup> The calculations also take into consideration wealth tax, tax on dividends, tax on capital gains, corporation tax and inflation. The purpose of the calculations is to analyse how changes in taxes and inflation affect the return on an identical family enterprise during the period (see Du Rietz and Johansson 2003 for a more exhaustive description and explanation for the assumptions selected).

At the beginning of the period the capital tax wedge was some 80 percent. In the mid 1970s it increased considerably. For a number of years in succession it exceeded 100 percent by a wide margin. A peak was reached at the beginning of the 1980s when it was approximately 140 percent. The high tax wedges arose as a consequence of tax increases, a strong degree of progressiveness, high inflation and nominal taxation. During a few years at the end of the 1980s it fell under 100 percent but in 1990 it returned to approximately 100 percent. The tax reform at the beginning of the 1990s, together with low rate of inflation, reduced the tax wedge substantially. In 2002 it

<sup>4</sup> Inflation, however, has the effect that the nominal value of capital increases. This gives rise to a latent capital gain. Prior to 1991 this has been taken into consideration by calculating the capital gains tax for each year on the nominal increase in the value of capital on the basis of tax on three-year possession. The tax rates for each year and the standard exemption from capital gains taxation have also been applied. Since 1991 the capital gains tax for entrepreneurs has been calculated on the basis of the so-called 3:12 rules (SOU 2002:52).

amounted to approximately 50 percent. However, this is still high in an international perspective (see Henrekson and Sanandaji 2004). Accordingly, the tax system has provided weak incentives over a long period of time for entrepreneurs who are active within the framework of privately owned companies.

### **The tax system and the agents in the competence bloc**

In this section we will analyze the effects of (high) taxes – partly on labor and partly on returns on individual company ownership – on the incentives for the different actors in the competence bloc.

High taxes on labor income, taxation on ownership that has favored large, capital-intensive enterprises (Davis and Henrekson 1997) and a large public sector can be expected to have a substantial effect on access to *competent customers* and the ways in which they act. High taxes on labor reduce the scope for private consumption of sophisticated and differentiated products, particularly if these products have a large degree of service content. It is therefore logical that Sweden has relatively few firms that focus on production of this type. On the other hand, there are strong incentives for entrepreneurs to attempt to develop business ideas that are based on low prices and a low degree of service content, and in which the customers do much of the work themselves. During the post-war period several successful Swedish enterprises have been based on this principle: H&M, Clas Ohlsson and IKEA are perhaps the leading examples. Otherwise the competent customers have been the large enterprises, particularly in the engineering industry, which have been able to create a market for a large number of sub-contractors. For a long period of time the public sector was also a competent customer, and cooperation between The National Electricity Board (Vattenfall) and Asea, Televerket and Ericsson, the Swedish Armed Forces and Bofors/Saab are often mentioned (see, for example, Edquist 2002) as major examples of the ways in which the government, in its role as purchaser, stimulated the development of new Swedish products and sectors that became important export industries at a later stage.

Where access to competent customers is concerned, the government and the large enterprises cannot play this role as effectively any more. There is a risk that Sweden is now too small in for private enterprises to be able to develop products and services where a government body makes the specification of requirements. Today new complicated products must normally be developed for a larger market from the very outset. Likewise the major enterprises have become more global concerning their purchases. There is also a great danger that many of them will move central operations

abroad, which will reduce the presence of locally competent customers. Braunerhjelm (2004) has found in his extensive interviews and questionnaires that personal income tax affects the location of the head office of multinational enterprises.

However, access to competent *inventors* and *innovators* has hitherto been good in Sweden. It is well known that Sweden has been a world leader for a long time in terms of the number of patents per capita (EU 2001).

By contrast, where the supply of productive *entrepreneurs* is concerned there is reason to believe that the tax system has constituted a restraining factor. A potential or existing entrepreneur is facing a number of important choices. Once an individual has chosen to be an entrepreneur instead of employed there are important choices to be made regarding the focus of activities and the rate of expansion. Firstly and not obviously, the tax system should not encourage people to pursue their business completely or partly in the informal (black-market) sector. Nor should it encourage unproductive entrepreneurship (Baumol 1990).<sup>5</sup> As shown elsewhere (see Henrekson and Sanandaji 2004 and references contained therein) the Swedish taxation of firm ownership is still designed in such a way that the relative return on becoming an entrepreneur is lowered and the expected return on expansion is likewise reduced. This increases the likelihood that only few enterprises eventually become large businesses. With high taxes on both salaried employment and entrepreneurship, the profitability of running a business (partly) in the black-market sector increases. Likewise potential growth sectors such as health care, education, child care and care of the elderly are not favored, since these activities are largely locked into the public sector. This is due both to the financing and the *de facto* monopolization of production or the overall rules for private producers.

The tax system can also be assumed to have a negative effect on the supply of *industrialists*. The work they perform is (or should be) demanding, and their competence and work inputs are instrumental for the development of firms – to make them grow from small to large. At the same time their function is often risky, since they often work in enterprises with uncertain future prospects, such as enterprises at an early stage of development where it is still uncertain whether the business idea will be successful; rapidly expanding enterprises where the revenues are still not stable; or enterprises that are being reconstructed where the outcome of the reconstruction is uncertain. If taxes are very high compensation for this work and risk-taking becomes low.

<sup>5</sup> Unproductive entrepreneurship means that the return on entrepreneurship, which for the entrepreneur can be at least as large in this case, comes from wealth redistribution rather than from wealth creation. In that case the entire return on the entrepreneur's activities is provided at the expense of others and therefore gives no contribution to national prosperity.



Stock option schemes are often an effective method of rewarding entrepreneurs and industrialists who do not have sufficient capital to finance their own ventures. In Sweden the use of this instrument is made difficult by taxation; profits on stock options are treated as labor income in cases where the allocation of the stock options is linked to employment in the enterprise. Accordingly profits made on stock options are subjected to both social security contributions and marginal tax rates of up to 57 percent, which means a total tax rate of roughly 68 percent. The issuer of the options, i.e. the enterprise, does not pay social security contributions until the stock options are exercised. Therefore the enterprise cannot calculate how much a stock option plan will cost. The only way of ensuring that the return on stock options are treated as capital income, and thus taxed at 30 percent, is to be taxed for the assessed value of the granted stock options (as labor income) at the point of time when the options are issued. However, an arrangement of this kind has two obvious disadvantages: (i) it cannot be utilized by employees who are wealth-constrained or who are risk averse, and (ii) the employee takes a considerably larger risk since the tax payable on the assessed value of the benefit can prove to be larger than the actual realized gains on the stock options.

Historically, the large Swedish enterprises have been an important nursery for the development of business executive skills. Now that the large enterprises have become less Swedish and, in many cases, have become foreign-owned, it becomes even more important to stimulate the emergence of industrial competence in other enterprises, primarily in new, small and rapidly expanding enterprises.

If the tax system weakens the incentives for entrepreneurs and industrialists, this constitutes a weakening of two of the most important mechanisms for commercialization of knowledge. According to our analysis it is reasonable to seek important parts of the explanation why the large number of Swedish patents and the successful Swedish research sector have given rise to so few successful businesses and have thus not delivered the expected return in the form of economic growth and employment. This is often referred to as the Swedish paradox (see, for example, Andersson 2002 and Gustavsson and Kokko 2003).

The return on education and experience, i.e. skilled labor, decreased for a long time in Sweden, even before tax (Palme and Wright 1998; Arai and Kjellström 2001). High rates of labor taxation reinforce this effect. Over time there is a danger that a low rate of return on education, on-the-job learning and self-reliance will lead to a situation where fewer people acquire highly valued professional skills.

The consequences of high marginal effects are multidimensional since they influence the choice of work, the volume of market work, the degree of effort, the inclination to assume duties with a higher level of responsibility, the inclination to invest in physical capital and human capital, and so on.

The supply of *venture capital* is of particular importance for the opportunities for growth available to small companies. Inputs by venture capital companies have been found to be of key importance for the success of new, technology-based enterprises (Lindström and Olofsson 1998). However, in the very earliest stages of the innovation process the major sources of capital are often “the three Fs” – *friends, families and fools*. As a consequence of high taxes on labor income and savings, access to this type of financing is reduced. In Sweden, venture capital companies are also at a disadvantage relative to producing firms from a tax perspective. This is due to the fact that returns are taxed three times (28 percent at both the enterprise and venture capital company and 30 percent at the owner’s level). From 2003 this has been reduced in most cases to double taxation, provided that the venture capital company holds at least 10 percent of the equity or voting rights in the firm. As a result of the rules for closely held firms in Sweden there is also the totally counterproductive effect, whereby a venture capitalist who takes active part in the management of the firm is taxed much more heavily than a passive financier (Henrekson and Rosenberg 2001).<sup>6</sup>

Also, where the emergence of an effective VC sector is concerned, the taxation of stock options is of great significance. In the U.S. stock options have been taxed at a rate of 20 percent since 1981 and no tax is payable until the shares in question are sold (Zackrisson 2004). This institutional change stimulated the emergence of the entire VC sector, which has proved to be an effective institution for harmonizing the incentives of entrepreneurs, investors and investment managers (Zider 1998; Gompers and Lerner 2001). However, the Swedish tax rules make it extremely difficult in practice for a highly competent VC sector – legally domiciled in Sweden – to emerge (Henrekson and Rosenberg 2001).

The high taxes on both labor and capital can be expected to have negative effects on the functioning of the *secondary market*. In combination with the organization of the social insurance system, the high taxes have considerably weakened the incentives for individual saving. As mentioned above, this creates difficulties especially for the financing of projects in the first phase of development.

<sup>6</sup> Research indicates that US enterprises backed by venture capital companies are more likely to succeed than other enterprises (Hellman and Puri 2000, 2002; Kortum and Lerner 2000). However this does not appear to be the case in Europe; there is little evidence that enterprises backed up venture capital companies grow more rapidly or are more successful in other respects than other enterprises (Botazzi and Da Rin (2002).

Another effect is that redistribution “washes the competence out of the money” (Eliasson 1996). The fact that some entrepreneurs, industrialists and venture capitalists earn money on their endeavors and investments proves that they have considerable capacity to generate high rates of returns on their activities. Many of these persons choose to become agents on the secondary market at a later stage and to use their skills to invest in and to develop firms founded by others. The Swedish policy vis-à-vis endeavors of this type was characterized for a long time – and is possibly still partly characterized – by a vision of creating an economic system that could be described as “capitalism without capitalists” (Johansson and Magnusson 1998).

Entrepreneurs and industrialists will then, in practice, often be replaced by bureaucrats and fund managers (of which the largest ones are often government-owned or corporatist) with less experience and competence to manage companies. In cases where the funds are controlled by the government or by corporatist interests, there is also a greater risk that political considerations gain weight in investment decisions (Henrekson and Jakobsson 2004).

If it is risky to grow, it is also rational for existing entrepreneurs to develop stronger preferences for control (see, for example, Davidsson 1989; Saemundsson 1999; Wiklund, Davidsson and Delmar 2003). With strong preferences for control, fewer enterprises will be interested in resorting to the secondary market to obtain capital and requisite competence by extending the circle of owners.

Taken together, the effects of the tax system on the competence bloc can be expected to have had a number of negative effects on productivity and growth. High tax wedges on labor have impeded a further division of labor, investment in human capital and the supply of skilled labor. High tax wedges on capital have most probably hampered the establishment of new and small firms and reduced the number of fast-growing firms. In particular, the progressivity of the tax system has reduced the expected rate of return on risky investments. Since there are large risks associated with investments in radically new innovations with high economic potential, this is expected to have had a profound negative effect on the development of new profitable technology. This is probably reinforced by high taxes on entrepreneurial effort, industrialists and active venture capitalists, weakening the link between research and development and commercialization.

### Final remarks

Conditions for production and development have undergone extensive changes in recent years. To understand this it is sufficient to point out a few phenomena of fundamental importance: the breakthroughs in information and communication technology and biotechnology; the ongoing process of global integration; the challenges resulting from demographic change; and the need for growth that is sustainable for society and the environment.

Today the development potential of the economy holds center stage in the discussions of future economic growth and prosperity in the rich countries. The outcome depends crucially on the interplay – through competition as well as cooperation – between individual actors.

In this paper we have argued that the successful commercialization of an innovation requires an entire chain of actors with complementary competencies, what we have called a competence bloc. The requisite actors must be given sufficient incentives to take action and, given that they act, the social incentive structure must be such that the actions of the different actors are harmonized into a well-functioning whole.

We have concentrated on the effects of the tax system on this incentive structure. This does not mean that there are not a number of other institutions that can be important. For example, it is important that job security mandates and labor market regulations promote rather than impede productive change and individual adjustments to new conditions.

Since there is a diversity of actors with, to a great extent, non-codifiable (tacit) decentralized knowledge that is highly dependent on the efficient functioning of the local environment in all its complexity, no central planner can acquire the requisite overview to “steer” these activities in a rational way. Instead, the main objective of government policies should be to provide appropriate institutions and reward structures that make whatever is socially beneficial profitable also from the perspective of the individual.

Creating appropriate conditions for organic growth based on an effective competence bloc places greater demands on government policies. Not least there is a need for appropriate legal structures (including tax rules) that encourage the spontaneous emergence of effective solutions from the bottom up.

It is the perpetual search by economic agents for profits that exceed the risk-adjusted rate of return available for passive investors that leads to a situation in which entre-



preneurship, talent and ownership skills are channeled to the right areas and supplied in optimal quantities.<sup>7</sup> This increases the probability that new business opportunities will be developed and exploited to their full potential. This process creates the organizational and structural capital that is an indispensable component in all successful enterprises. The potential entrepreneur can always refrain from using his/her skills and remain an employee with a fixed salary; the venture capitalist can choose to remain passive instead of supplementing his financial investment by supplying management skills and so on.

The small, entrepreneurial enterprises fill a special role as a force for renewal in the economy (Baumol 2002; Audretsch 2002), but our analysis suggests that they are affected particularly negatively by the current system for taxation of labor and capital. We deem that this can be a major explanation behind the lack of rapidly growing firms, the unsatisfactory degree of commercialization of Swedish research and development, and the low rate of economic growth.

<sup>7</sup> The profits that exceed the rate of return available through a passive investment on the capital market are called *economic rents*. To a great extent it is the pursuit of these returns exceeding the market rate that motivate firms and entrepreneurs to finance new innovations (Schumpeter 1911/1934; Benhabib and Spiegel 2002) which in turn gives rise to economic growth. This is discussed more fully by Henrekson and Sanandaji (2004).

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