

# *Technological Innovation and Business Policy in a Social Democracy: The Paradox of Sweden*

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## **Introduction**

If it's true that Swedes believe the future hope of Swedish industry rests with inventiveness, fresh thinking and entrepreneurship (Britton 2004), than its social institutions must support this pursuit. The role of science and technology policy as catalysts for economic growth has been the subject of elaborate discussion among policy-makers, entrepreneurs and academics. At the heart of the discussion is a fundamental question. How can innovation policy be used to strengthen and advance national economies? Technology policy is defined as policies that are intended to influence the decisions of firms to develop, commercialize or adopt new technologies. Recent research has examined how the supply of entrepreneurship is affected by tax and welfare arrangements that are prevalent in the welfare state of Sweden. The research concluded that various welfare state institutions influence the incentives for entrepreneurial activity (Henrekson 2005). This paper will build these findings by investigating how Sweden's welfare state institutions influence innovation and business growth by examining innovation policies and their impact on commercialization.

## **The Process of Innovation**

Technological change is recognized as a driver of economic development and is promoted by efforts in both private and public domains. In advanced societies, the structure of technological innovative systems is often a collaboration among universities, governmental research laboratories, policy-makers and entrepreneurial activity. These collaborations have been come to be known as "national innovation systems" (Freeman and Soete 1997).

Innovation, specifically, is a set of behaviors among enterprises to plan and implement changes in their practices in order to develop new products, processes or services. It includes research and development activities, and science and technology collaborations, but it is also market oriented and concerned with commercialization. Recently, a study that assessed innovation policy instruments in European regions found that traditional science and technology policies do not fully support innovative practices (Nauwelaers & Wintjes 2002). The research concluded that policy should support innovation in small and mediums enterprises more fully. The argument is that small and medium enterprises (SMEs) are an important target group for innovation policies because of their lack of resources, and their inability to shape external forces. The research results are vital for Sweden because their technology policy is focused on large firms.

### **Technology Policy**

In the quest for technological progress, oftentimes governments implement technology policy to promote innovative activities that provide economic and social benefits to society. Many establish agencies to provide R&D funding to private firms, universities and research institutes. Recent research findings, however, are calling for a paradigm shift in innovation policy to more fully support the *practice* of innovation (Nauwelaers & Wintjes 2002). First, technology policy should be flexible, taking country and regional differences into consideration, while realizing no one best policy exists. Second, policies should be learning inclusive because knowledge has to be diffused and lessons learned. Policy-makers need to be able to determine where markets are failing and which policies can best intervene. Lastly, policy should be interactive. Communication with entrepreneurs and SMEs is critical. Policies should be designed for and in cooperation with beneficiaries. Policies should also facilitate linkages at regional, national, and international levels.

### **Innovation in Sweden**

#### **History**

Sweden has a history of inventiveness and has been consistently ranked among the top innovative countries in Europe (EIS 2005). There has been much speculation around the reasons why Swedes are so highly inventive. Some point to Sweden's remote location and severe weather as reasons for the prudent use of resources. Others point to a national culture of ingenuity and equality. But what has been the true impact of the country's focus on equality? How has equality in a welfare state influenced inventiveness in Sweden? Are Sweden's economic and political policies affecting technology policy and successful market introductions of inventions?

To understand the commercialization of inventions in Sweden, one must examine the role of social democracy in shaping economic and technology policy. Sweden is a country embedded with a strong wealth redistribution policy. Wealth is distributed among the population in the form of large tax-financed systems of education, health care child and elder care, insurance, pensions and general allowances. "This classic welfare state

has been referred to internationally as the middle way, the third way or the Swedish model-the latter expression originally describing the centralized negotiations between Swedish employers and the country's strong unions, which secured stability in the labor market for several decades as the welfare state expanded" (Britton 2004). Research has shown that the prevailing tax and welfare arrangements in a mature welfare state like Sweden has had a tremendous impact on the supply of entrepreneurship (Henrekson 2005).

### **The Welfare State**

As a welfare state, Sweden publicly finances provision or subsidization of personal services such as medical care, child care and elderly care. Sweden's welfare state is also expressed through budgetary and regulatory measures such as rent control and employment laws. Furthermore, since the 1960's Sweden has had the largest share of public sector as a share of GDP in the OECD, especially government consumption. Moreover, since 1980, government employment has been one-third of total employment.

The key elements of the Swedish model and its impact on incentives to start entrepreneurial ventures has been the subject of interest among researchers (Henrekson 2005). The main element of the Swedish model is that large corporations and the public sector are seen as engines of economic development. In this type of economy, much less emphasis is placed on individual incentives for entrepreneurship.

When the Sweden model was developed economic policies were oriented deliberately focused on large corporations. Small firms and entrepreneurship were marginalized elements in terms of economic development and business policy. Policy makers were aware that in a welfare state there would be detrimental affects on the entrepreneurship function, but at the time those adopting welfare state policies felt entrepreneurship was waning in importance. Sweden has kept true to this philosophy despite large firm dominance declining in most other parts of the industrialized world. Around 1970, we see a resurgence of the importance of small firms and entrepreneurship around the world.

On major detriment of the welfare state is the disincentive affects of government regulation on the capital, product and labor markets. This is clearly seen in the taxation system. The taxation of entrepreneurial income is especially harsh. Households that own businesses are taxed at a higher rate and are subject to wealth and income taxation. Swedish taxation clearly favors institutional ownership and discourages direct household ownership. In fact, the Swedish government itself pointed to weaknesses in the system noting that it had become unprofitable for some groups in society to work at all (Ministry of Finance 1994, 1997).

### **Technology and Knowledge Transfer**

An important industry for Sweden is information technology (IT), specifically, telecommunications, as evidenced by Ericsson's worldwide success. The development in

the IT sector and in biomedicine is occurring in industrial parks where private companies collaborate with leading universities, aided by government investments. Science parks have been used in Sweden to provide a high-tech framework environment for scientific collaboration, innovation, and research and development. There are more than a dozen science parks in Sweden, such as Chalmers Science Park, Novum Research Park, Lindholmen Science Park and Sahlgrenska Science Park.

In addition to science parks, Sweden has technology districts near university settings. IDEON, the first science and technology park in Sweden was founded in 1983 to offer high-tech companies the opportunity to pursue research and development in close proximity to universities such as the Lund Institute of Technology. The main areas represented at IDEON are biotechnology, pharmaceuticals, and wireless communications. Similar to the U.S.'s silicon valley, Sweden boasts Medicon Valley, which is highly respected in the biotech and pharmaceutical fields.

As evidenced by the many science and technology parks, Sweden has had strong research and development policies. But global business success requires more than R&D. What entrepreneurial and investment activities are needed to commercialize new products and help business ventures grow in scale to compete successfully on a world-wide basis? Failure to infuse Swedish industry with new businesses puts the future strength of the national economy in jeopardy.

This is especially curious given Sweden's dependency on exports. Sweden's national market is small (fewer than nine millions people). The Swedish economy is highly dependent upon exports, particularly in the engineering industry. This category includes the automotive, telecommunications, and electrical goods industry and accounts for more than 50 percent of Swedish exports. (Britton 2004).

Research on innovation policy also revealed that support should be targeted to individual firms and regions. The research found that the focus of business support should be toward increasing innovation capacity and making necessary resources inputs available (Nauwelaers and Wintjes 2002). The study also pointed out the policy should be interactive and market oriented. An interactive mode of business and technology policy means that services and programs should be designed and delivered in co-operation with the beneficiaries, and learning should take place both ways. The idea is that if policies are interactive they will better fit with markets. The research showed a lack of market orientation of business and technology policy tools and a lack of focus on the commercialization aspects of innovation.

Historically, governments have intervened with mechanisms to deliberately influence resource allocation decisions in order to facilitate technology development and commercialization (Salemkaita and Salo 2002). Venture capital is traditionally a part of an innovation system of commercializing new technologies in start-up firms, private equity is underdeveloped in Sweden. Deficiencies in the venture capital part of the innovation system have been observed in the OECD in general, and governments have been urged to utilize proactive measures to realize full potential of innovations.

A better understanding of the implementation and effectiveness of technology policies is needed in order for Sweden to capitalize on the opportunities presented by high levels of innovation. As markets become more global, national economies must harness and maximize entrepreneurial and innovative activity. The research outlined in this paper provides the theoretical underpinnings for understanding technology policy effectiveness in supporting entrepreneurship and commercialization.

### **The Research Design**

The research will answer four basic questions:

1. How well are Sweden's innovation policies advancing its economic goals?
2. How are Sweden's innovation policies supporting the commercialization of inventions?
3. Is the current support for the entrepreneur and small business owner in Sweden appropriate?
4. What are the opportunities for Sweden to infuse its economy with entrepreneurial activity within its welfare state model?

The research will be carried out using qualitative research methods. Governmental programs will be examined and compared to assess their effectiveness in assisting entrepreneurs with commercialization of new innovations and with business growth. The impact of the welfare state on program development will be analyzed. Interviews with policy-makers and program managers will also be conducted.

The global business environment is evolving. This research will hopefully speak to how important it is for economic policy to evolve with the business environment. The research seeks to provide insight about how to adjust the roles of private and public sectors in promoting innovative activities and economic growth. The results have the potential to influence the design of policy measures related to technology and innovation.

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