Working Paper No. 2010/88

The Swedish Model

Ari Kokko*

August 2010

Abstract

The main characteristics of 'the Swedish model' are arguably related to the country's knowledge-intensive industry and its advanced welfare state. The purpose of this paper is to discuss the historical development of these two features of the Swedish economy. The first part looks at industrial development, highlighting both the reasons for the rapid industrialization in the late 19th century and the subsequent shift from raw materials to human capital and knowledge as the main competitive advantages. The second part turns to the development of welfare state, stressing the gradual increase in benefits and coverage as well as the emphasis on universal rather than means-tested benefits. The final part suggests some policy conclusions for today's developing countries and emerging economies.

Keywords: Sweden, industrialization, welfare state

JEL classification: O14, O32, N34

* Copenhagen Business School and Stockholm School of Economics, email: Ari.Kokko@hhs.se

This study has been prepared within the UNU-WIDER project on Country Role Models for Development Success, directed by Augustin Kwasi Fosu.

UNU-WIDER gratefully acknowledges the financial contributions to the project by the Finnish Ministry for Foreign Affairs, and the financial contributions to the research programme by the governments of Denmark (Royal Ministry of Foreign Affairs), Finland (Finnish Ministry for Foreign Affairs), Sweden (Swedish International Development Cooperation Agency—Sida) and the United Kingdom (Department for International Development—DFID).

ISSN 1798-7237 ISBN 978-92-9230-326-6

The World Institute for Development Economics Research (WIDER) was established by the United Nations University (UNU) as its first research and training centre and started work in Helsinki, Finland in 1985. The Institute undertakes applied research and policy analysis on structural changes affecting the developing and transitional economies, provides a forum for the advocacy of policies leading to robust, equitable and environmentally sustainable growth, and promotes capacity strengthening and training in the field of economic and social policy making. Work is carried out by staff researchers and visiting scholars in Helsinki and through networks of collaborating scholars and institutions around the world.

www.wider.unu.edu *publications@wider.unu.edu*

UNU World Institute for Development Economics Research (UNU-WIDER)
Katajanokanlaituri 6 B, 00160 Helsinki, Finland

Typescript prepared by Lisa Winkler at UNU-WIDER

1 Introduction

It may be tempting to argue that advanced economies like Sweden are not relevant as role models for developing nations: what lessons could a developing country possibly learn from an industrialized economy with a generous welfare state? However, Sweden has not always been a high income country that guarantees a high level of social security for all inhabitants. Instead, industrialization occurred at a relatively late date compared to other Western European countries, exports have been dominated by primary commodities for most of the past century, and industrial employment did not exceed agricultural employment until the 1930s. The welfare state, with universal access to education, health care, and other social services, was not realized until the 1960s. In other words, there are periods in the Swedish development with conditions that are comparable to those in many of today's developing economies. Hence, while the current Swedish debate is perhaps irrelevant from a development perspective, it may be possible to draw important insights from some of the historical episodes and events that formed the distinguishing features of the society we see today.

The main characteristics of modern Sweden (or the 'Swedish model')[1] are arguably related to the country's sophisticated and knowledge-intensive industry and its advanced welfare state. Both of these features have developed gradually over time, and a summary of these development processes may reveal some of the decisive policy steps as well as the structural conditions that have made it possible to achieve both industrial success and a high level of social welfare. The first of the episodes discussed in this paper refers to the industrial breakthrough in Sweden in the late 19th century, and the gradual emergence of a knowledge-intensive manufacturing and service industry during the 20th century. The most remarkable characteristic of Swedish industrialization was arguably that it commenced at a relatively late date, but that it progressed very rapidly once it was in motion. In 1870, about 100 years after the advent of the industrial revolution in Great Britain, Sweden was essentially still an agricultural economy with a per capita income level of about half of that in Great Britain. A few decades later, at the beginning of the 20th century, the Swedish industrialization had made a strong breakthrough, and companies like Ericsson, AGA, ASEA, Alfa-Laval, and Sandvik had already established an international presence, with foreign affiliates across the world. The main question in this context is perhaps: how could Sweden achieve such rapid industrialization? At the core of this development were raw material-intensive sectors like paper and steel. The fact that these industries are still crucially important for the Swedish national economy today, when the focus has shifted from natural resources to the knowledge economy, suggests another important question: what is the role of resource-based industries in the development process?

The second episode concerns the development of the Swedish welfare state. A very large share of education, health care, pensions, and other social services are provided by the state and largely financed by taxes. In most cases, the provision of public goods is

---

1 In this context, we define the 'Swedish model' in a very general way, referring to the combination of an advanced knowledge-intensive economy based largely on market principles and a comprehensive welfare state. There are several more specific interpretations of the Swedish model in the literature, focusing e.g. on the so called Rehn/Meidner model for labour market policy (Erixon 2001) or the structure of the welfare state (Kangas and Palme 2005).

based on universal rules rather than means-testing, so that all residents have equal access to social services. Together with the high and progressive taxes levied to finance the welfare state, this has made Sweden one of the world's most egalitarian societies: poverty rates are low and the dispersion of personal net income has also been low. The publicly financed education system, which includes university education, has been particularly important in this context, since it has raised the degree of social mobility. The main questions related to this episode concern the growth of the welfare state: when did the welfare state emerge, and how has it been possible to create public support for the high taxes needed to finance the generous social security system?

The following section discusses Swedish industrialization and industrial development in an historical perspective. From the point of view of development strategy, it appears that the combination of benchmarking and early investment in institutional capacity has been especially important for growth and competitiveness: in particular, the early stages of industrialization benefited greatly from prior investments in institutional infrastructure.[2] Section 3 turns to a discussion of the welfare state, and argues that it has not been the result of any underlying 'master plan', but rather developed gradually, in line with the needs of industry and society and according to the financial resources available from the state budget.[3] Section 4 summarizes some of the insights from these two historical episodes.

2 Industrialization and industrial development

Most studies of Swedish economic history suggest that industrialization commenced around the middle of the 19th century, and that the real takeoff occurred some decades later, during the 1870s and 80s. Two exogenous events are often highlighted as the main triggers of this process. One was the rapid growth of demand from Great Britain, the main industrial power at the time. The British export market provided an outlet for Swedish raw materials—during the 1850s, mainly grains and timber, and increasingly also pulp and paper and iron and steel from the 1870s on—and motivated substantial investment in production capacity and trade infrastructure. In addition, export incomes created a domestic demand for a variety of other manufactured products, contributing to a broadening of the industrial base. The other event was technical progress in pulp and paper and steel production. The development of chemical pulp technology after the 1870s created new opportunities for exploiting the vast forest resources in Northern Sweden, and created another export boom. Similarly, the conditions for mining and steel production improved dramatically from the late 1870s on, thanks to new production technologies. Northern Sweden had abundant supplies of iron ore, but the high phosphorus content of the ore had made it unsuitable for steel production until the so-called Thomas smelting process was introduced in 1876. This new technology raised the value of the Northern iron ore supplies and led to a very substantial export expansion during the following decades.

However, by the time paper and steel production propelled Sweden into the industrial era, many important reforms had already paved the way for industrialization: the

---

2 This section will draw heavily on Kokko (2005).

3 The section on the welfare state is partly based on Kokko and Tingvall (2008).

Swedish economy had started to change in a fundamental manner from the beginning of the 19th century. These reforms made it possible for Sweden to seize the development opportunities that opened up through subsequent changes in international demand and technology. The foundation was, to a great extent, created through conscious policies in agriculture and education, although exogenous technical changes also played an important role. Policy played a particularly important role by creating substantial excess capacity in domestic institutions: given the limited need for knowledge in the pre-industrial economy, Sweden had more human capital and a more sophisticated institutional structure for knowledge management than what was needed. The surplus capacity proved to be an essential competitive advantage once the exogenous events that facilitated the industrial breakthrough fell in place.

2.1 Improvements in agricultural efficiency

The most significant pre-industrial changes took place in the agricultural sector. Up to the end of the 18th century, the Swedish agriculture had relied on archaic production techniques and harvests were barely sufficient to feed the population. Famines were not uncommon: the last widespread famines occurred in the early 19th century. Three main changes contributed to a transformation of agriculture that began around 1800, and continued throughout the 19th century.

First, the structure of land ownership was reformed. Traditionally, the land holdings of rural families had been divided into several separate strips of land, dispersed around the village. The purpose was to make sure that farmland of different quality was distributed fairly among all families belonging to the village. However, the fragmented ownership pattern also contributed to inefficiency and slow diffusion of innovations, since all production decisions—including adoption of new technologies—had to be coordinated among the village members. To overcome these obstacles, land reforms were undertaken in most parts of the country during the first decades of the 19th century. The traditional ownership pattern was broken up, and land was redistributed so that each farm got one larger plot instead of the many separate pieces (see Carlsson 1980). In some parts of the country (especially in the more fertile southern regions), this also meant that villages were broken up: the peasant families moved their houses from the village to the center of their own plot of farmland.

Second, new production techniques were adopted, and agricultural productivity increased. This was partly a result of the land reforms—diffusion of new techniques became faster when it was not necessary to convince the village majority about adoption of new practices—but also related to technical progress in the machinery industry. The most important innovations during the early part of the century were better ploughs, and after the 1850s, machinery for sowing, harvesting, and threshing also became widely used. Furthermore, increasing use of fertilizers made more intensive cultivation possible.

Third, potato became the new staple crop. It had been introduced to Sweden several centuries earlier, but its breakthrough did not come until the end of the 18th century—before that time, potatoes had mainly been used as animal feed. Potato was well-suited to Swedish conditions, and it yielded larger harvests than the traditional staple foods, beets and turnips.

One result of the changes in the agricultural sector was a marked improvement in food supply. Together with improvements in health care and medicine (and a long period of peace beginning in 1809), this led to rapid population growth. During the first 60 years of the 19th century, the Swedish population increased from 2.3 million to about 4 million. The area of farmland grew from 1.5 million hectares in 1800 to 2.6 million hectares in 1850 and 3.6 million hectares in 1900 (Larsson 1991). Agricultural productivity grew continuously, and output sufficed to feed both the farmers and a growing urban population. In fact, Sweden became a significant exporter of cereals in the 1850s, after having been a steady net importer of grains until the 1830s. Hence, the increase in agricultural productivity facilitated the transfer of labour to urban occupations and generated export earnings that could be used for investments in forestry and manufacturing. The increasing rural incomes also translated into demand for the goods produced in the emerging manufacturing industries.

The domestic manufacturing industry was quick to respond to this increase in demand from the very beginning. It is possible to identify at least two strong explanations for the rapid supply response. One reason was that some primitive manufacturing activities—a kind of *proto-industrialization*—had begun several centuries earlier and created various skills and expertise that were highly useful for the industrial era. This included, for instance, the framework for the Swedish army's procurement of supplies and equipment. Cloth, uniforms, weapons, utensils, tobacco, and alcohol were produced by so called *manufaktur* companies, some of which were relatively large (although their production methods were primarily based on handicrafts). They provided important elements of industrial culture, and the towns where the *manufaktur* firms were located had an advantage over other locations after the advent of the industrial revolution.

Due to the highly seasonal nature of Nordic agriculture, rural households had traditionally produced significant amounts of handicrafts during the winter months: leather goods, textiles, shoes, and simple tools were made by most families. After 1800, this production increased and became more specialized, both because of population growth and because demand was growing due to the higher incomes. In some parts of the country, merchants purchased a large share of the output, and they sometimes commissioned the production of entire villages. The main significance of this type of activity may have been the development of commercial skills. As modern technologies for the production of textiles became available after the middle of the 19th century, the Swedish textile factories were often established by the same merchant groups that had been involved in the trade with handicrafts.

A related development was apparent in mining and forestry. Swedish producers had strong positions in the European markets for copper, iron, and tar already from the 17th century, and it has been argued that one of the most important skills learned during the early years was international marketing (Hallvarsson 1980). Many of these merchant and trader families were also involved in the establishment of the new ironworks and sawmills that were created during the 19th century. Hence, some important elements of industrial culture were in place already before industry was.

2.2 Education and technical skills

An even more important determinant of industrial success was the increase in the level of education and human capital that had started well before Sweden entered the industrial revolution. Like the institutional changes in agriculture, this was also a result

of conscious policies. Both formal and informal types of education and training were supported by the state and various private interests. The perhaps most important step was the introduction of a mandatory school system in 1842, which proved crucial for the creation of a skilled human capital base and for the dissemination of new technology. The official ambition was to guarantee basic skills in reading, writing, and arithmetics to all citizens, and literacy rates reached nearly 100 per cent within one generation. This was essential for the ability of individuals and firms to learn and adopt new knowledge: much elementary learning and technology transfer was based on written instructions, like blue-prints and handbooks.

Concurrently, there were important changes in higher education. At the summit of the formal education system were the old universities in Uppsala and Lund, established already in the 15th and 17th centuries. These expanded throughout the 19th century, with heavier emphasis on natural sciences than earlier (when law and theology had been the dominant subjects). The great increase in the number of professorial chairs during the period when industry started developing rapidly, in particular between 1870 and 1914, was arguably of 'immense importance' for the industrial breakthrough (Ahlström 1993). Several institutions for advanced technical education were also founded outside the traditional universities during first half of the 19th century. The Technological Institute in Stockholm was established in 1826, and it became the Royal Institute of Technology in 1877. In Gothenburg, the Chalmers Technical School was set up in 1829, and it provided scientific and technical education at a university level already from its inception, although it was not formally named a Technical University until 1937 (Ahlström 1992). Technical colleges were established in several Swedish cities—Malmö, Borås, Örebro, and Norrköping—during the 1850s. Numerous vocational training schools were also set up in various parts of the country from the same time, to number about 35 at the end of the 19th century and 66 in 1908–9 (Ahlström 1992). The guild system was abolished in 1846, and the training schools quickly began to replace apprenticeships as the main form of vocational education. Most of the vocational schools depended on private initiatives, although some were financed by the state. Among the latter were nautical training schools (from 1842), forestry secondary schools (from 1860), and agricultural colleges (from 1887) (Nilsson and Svärd 1991). The state's engagement in this area increased further from the early 20th century on, and vocational schools have been important tools for the upgrading of labour skills ever since that time.

Parallel to the development of formal education, other institutions also appeared that were involved in the development of technology and industry. The Royal Swedish Academy of Science dated back to 1739, and the Swedish Ironmasters' Association was established in 1747. The Ironmasters' Association, which was partly state-financed, was particularly important for the transfer of foreign technology to Sweden. The Association started the publication of the mining science journal *Annalerna* in 1817, and financed a very large number of foreign study trips made by Swedish engineers and scientists, requiring detailed written reports that were made available to the rest of the Swedish industry. Several new organizations emerged during the 1860s, e.g. the Swedish Association of Engineers and Architects and the Stockholm Engineering Association. The Swedish Academy of Engineering Sciences, the Wood Pulp Association, and the Swedish Institute of Metal Research were added in the early 20th century. These institutions were closely in touch with scientific research and technical education, and they played—and continue to play—a significant role for the diffusion and dissemination of technical skills. New engineering workshops, like Motala Verkstad,

established for the construction of lock-gates and iron bridges for the Göta canal network in the early 19th century, were also indispensable as training centers. In addition, it is necessary to note the importance of labour migration. Swedish engineers were often trained and educated in Great Britain and Germany, and important contributions were made by several British engineers that immigrated to Sweden (Schön 1982).

It is difficult to find accurate measures of the importance of these different types of investment in skills and human capital. However, it is clear that the supply of skills increased steadily from the 1850s on. The number of engineers educated at the higher technical institutes amounted to about 700–800 in 1850, and some 2,000 in the late 1890s. The number of engineers with secondary education also reached about 2,000 at the end of the 19th century (Ahlström 1992). Before the industrial breakthrough, these resources could not be fully exploited in Sweden—consequently, many engineers emigrated to the United States in search of qualified jobs—but they provided a strong competitive edge for the development of industry once the other conditions for industrialization were in place. Moreover, the technical skills often translated into entrepreneurial success. The founders and leaders of several of the most successful Swedish companies were educated at the technical institutes and had received foreign training that was paid by the state or some of the institutions mentioned above. For instance, Hans Tore Cedergren, who played a central role for the emergence of the Swedish telephone industry, and Gustav de Laval, founder of AB Separator in 1883 (known as Alfa-Laval from 1963) were educated at the Technological Institute of Stockholm. Gustav Dalén, manager and chief engineer of AGA, was a graduate of Chalmers, and Sven Winquist, founder of SKF, had been educated at the technical college of Örebro. Lars Magnus Ericsson, the founder of the telephone company still carrying his name, had received state grants for studying the electrical engineering industry in Germany and Switzerland company, as had most other leading industrialists in the country. Ahlström (1992, 1993) argues that the successful innovators and entrepreneurs illustrate that there existed a network between the technical institutions, industry, and government already from the middle of the 19th century, and that this contributed significantly to the success of Swedish industrialization. It was of central importance for the development of industry, especially after the 1880s, when products became more differentiated and goods such as pulp, paper, and engineering products became more important.

In addition to the institutional changes in education, it is appropriate to note that there were other institutional changes that preceded industrialization but turned out to be of utmost importance for developments once the industrial takeoff commenced. One of the most significant changes was a restructuring of the state's forest holdings in the mid-19th century. Large amounts of forest land were distributed to private owners, especially in southern Sweden, and the structure of forest ownership was registered. This meant that property rights were well-defined, and the private owners were in a position to respond rapidly to the increasing export demand that emerged some years later. Another notable event was the introduction of limited company laws in 1848. This made it possible to raise more capital and take risks, which was necessary as the rate of technical change increased during the second half of the century. Earlier, most firms had been owned or at least dominated by one single family, and the owners were personally responsible for the firm's debt (Larsson 1991). Limited companies—where the owners' stake was limited to their share of the firm's initial capital—employed 45 per cent of the

industrial labour force in 1872, and 80 per cent of the labour force in 1912 (Hallvarsson 1980).

2.3 The industrial breakthrough

While the productivity increases in agriculture and the advances in education and human capital development were essential prerequisites for industrialization, there is no doubt that the immediate trigger for industrialization was a boom in foreign demand for Swedish products. This occurred in several steps, starting in the 1850s with grain and sawn wood as the main export commodities, and continuing during the 1870s and 1880s with pulp and paper, iron ore, and steel as the dominant products.

Exports of grains were of tremendous importance for the industrialization process, although their origin was in the agricultural sector rather than in the manufacturing sector, and although the era of grain exports lasted only from the 1850s to the 1880s. One reason was that the expansion of agriculture during these decades provided employment for the increasing population at a time when industry was not sufficiently developed to absorb enough employment. Another reason, already mentioned above, was that export incomes created demand for a variety of domestic manufacturing products in the early stages of the industrialization process. In addition, export incomes were also used to finance important parts of the early industrial expansion.

Sweden had been a net importer of cereals until the 1830s, as noted earlier, and exports were still limited during the late 1840s, reaching some 40,000 barrels annually. At the peak, 30 years later, exports had grown to 4 million barrels per year (Carlsson 1980). The reasons for the grain boom were largely to be found outside of Sweden. Demand was high, especially from Great Britain, where the industrialization process had taken off and domestic cereal production was not sufficient to feed the growing urban population. Bad harvests in England and elsewhere on the European continent during the early 1850s increased the demand further. At the same time, Swedish harvests were unusually plentiful. Moreover, the leading European grain exporter, Russia, was hit by the Crimean War in 1853–6, and Russian exports ceased almost completely.

The successful Swedish response to this new export opportunity was made possible by a relatively responsive agricultural sector (that had been created by the institutional changes in the structure of land ownership) and the appearance of various technical innovations that increased productivity, e.g. machinery for sowing, harvesting, and threshing (which could be quickly diffused across the country thanks to the improving levels of education and technical skills). Sweden managed to hold on to large shares of the English grain imports until the 1880s, but the trade disappeared as suddenly as it had emerged. The reasons were that Russian exports resumed at large scale, and the United States emerged as the new leader when the Great Plains had been taken into production.

From the 1850s, there was also an increase in the demand for forest products—mainly pit props and sawn wood—fed by the British urbanization. Swedish exports of sawn wood products had been insignificant before the 1840s, for several reasons. Norway was a stronger exporter, both because of shorter transport costs and because the technical level of Norwegian sawmills was higher. In addition, the English *Navigation Acts* gave preferential treatment to Canadian producers (Carlsson 1980). However, the situation changed very rapidly in the early 1850s. The English import protection was abolished, and the Norwegian forest resources were over-exploited, which gave ample

opportunities for Swedish wood exporters to step in. The increase in demand motivated investments and technical improvements—for instance, steam-powered saws were introduced—and sawmills became more efficient. Norwegian entrepreneurs actually played an important role in this process, as several companies moved to Sweden because of the dwindling forest supplies in Norway. As a consequence, exports of sawn wood increased from less than 200,000 m^3 in the 1830s to 4,800,000 m^3 at the end of the century. In the 1870s, wood products had grown to make up 43 per cent of Swedish exports (Hallvarsson 1980).

Some decades later, there were new export booms for pulp and paper and iron and steel. Exports of pulp and paper started growing from the 1870s, and Sweden had become the world's largest pulp exporter by 1913. This expansion differed from the sawn wood boom in several ways. Sawmilling had been an easy start, since the capital requirements were low and the technology was simple. Pulp and paper production was significantly more capital- and technology-intensive, and posed much tougher requirements on domestic institutions and technological competence than sawmilling had done. Domestic policies were also much more important for the success of the industry. Thanks to the development of a relatively efficient banking system, profits from sawmills could be channeled to finance the expansion of pulp and paper mills. At the end of the 1870s, the Swedish financial system comprised 35 commercial banks with offices in 160 cities, which was comparable to the most highly developed nations in the world at that time (Larsson and Olsson 1992). The development of domestic technological capability had also proceeded far enough to allow production and exports of more advanced goods. In fact, Swedish inventors had taken the lead in the development of pulp technologies, and the world's first chemical pulp factory was established in Bergvik, on the coast of Norrland, in 1872.

The mining industry that started expanding during the last decades of the century was also heavily dependent on modern technology. Sweden had held a strong position in the international market for metals for several centuries. The main export product until the middle of the 19th century was bar iron. The production of iron was strictly controlled by the state, in order to avoid deforestation and degradation of forest resources: the industry used massive amounts of timber in the form of charcoal. It has been estimated that the mining industry's use of wood was four to five times larger than wood exports as late as 1854. Hence, exports of iron ore and pig iron (which were low value added products) were restricted. These strict rules were liberalized in the 1850s, when technological innovations—the Bessemer and Martin processes—made it possible to use coal and coke instead. However, the Swedish production and exports of iron and iron ore stagnated during the decades after 1850, because the comparative advantage of the Swedish iron industry had been the abundant supply of charcoal. Instead, coke and coal-based steel production in continental Europe expanded rapidly. It was not until the so-called Thomas process for the production of steel was introduced in the late 1870s that the industry started recovering. It was known since centuries that there were rich iron ore deposits in Northern Sweden (Lappland). These had not been exploited earlier because of their high content of phosphor, which made the steel weaker. Now it became economically viable to develop the industry, and new ironworks were established. Production of steel for domestic use increased rapidly, but exports of steel remained relatively low during the first decades of the industry's development. Instead, iron ore was exported directly to the main iron and steel plants in Germany and Great Britain.

The development of mechanical and engineering industries, which started during the latter part of the 19th century, was also driven by technological innovations, but these were more directly connected to domestic capabilities and skills. Especially the 1880s proved to be a golden decade for the Swedish industry, when several path-breaking innovations were presented, and when industrialization really took off: the number of industrial workers increased by 66 per cent between 1880 and 1889 (Hallvarsson 1980). Examples of long-lived Swedish firms that were established during the late 19th century or the first years after the turn of the century are Ericsson, Alfa Laval, ASEA, AGA, Nobel, Sandvik, and SKF. Table 1 illustrates the changes in the structure of Swedish exports between 1881–5 and 1911–3. The relative importance of sawn wood and cereals fell, whereas more advanced products, like pulp and paper, engineering products, and iron ore became more important.

Table 1: The structure of Swedish exports, 1881–5 and 1911–3

	1881–5 (per cent)	1911–3 (per cent)
Sawn wood	40	26
Iron and steel	16	9
Cereals	12	1
Butter	6	6
Pulp and paper	5	18
Engineering products	3	11
Iron ore	-	8
Other	18	21
Total	100	100

Source: Larsson and Olsson (1992: Table 3).

While the export demand was the driving force behind the early stages of industrial development until the late 1860s, the domestic market became gradually more important after that, partly as a result of explicit policy intervention. One example was the development of domestic infrastructure. Heavy investments in railroads (especially during the 1870s) and the introduction of electric energy (from the 1880s) made it possible to specialize production and transport raw materials and finished goods across the country. The earliest industrial developments, e.g. in sawmills, had relied on waterways, but now a more general industrialization, based on the domestic markets, was possible. The demand for metal and wood generated by the construction of infrastructure facilities, mainly railroads, also stimulated domestic demand.

Another reason for the heavier emphasis on the home market was even more directly related to policy. The export booms during the early stages of the industrialization process took place at a time when economic liberalism and free trade ideologies reached a first peak. This meant not only that Sweden could freely sell primary products to the rest of Europe, but also that Sweden imported much of advanced consumer and investment goods from the industrially more developed countries in Europe. These policies changed from the late 1880s, when a wave of protectionism swept over Europe. Both agricultural and industrial imports were restricted, and the average tariff level in Sweden before the First World War reached about 15 per cent of value added. A further

sign of the changing policy climate was the introduction of policies to limit foreign ownership of Swedish resources. Earlier, foreign participation and investment had been welcomed. This meant that domestic markets became more important, since similar developments occurred in the rest of Europe as well.

One can only speculate about the significance of the timing of policy regimes. It appears that Sweden was fortunate, in that the inward-looking policies were not introduced until there was a firm base for domestic development. Agriculture had expanded and the increased productivity created incomes and demand for various types of consumer goods. Technological skills had been developed, which facilitated the creation of a variety of import substituting industries. The export success had brought in foreign capital, and a foundation for a more comprehensive industrialization was in place. In many of today's developing countries, the experiences of import substitution are significantly less positive. One reason could be that the knowledge requirements in modern industry are far higher than they were at the end of the 19th century. While Sweden was able to create a human capital base that was sufficient to absorb foreign technologies and develop domestic innovative capabilities, few developing countries have similar capacities today: the dependence on foreign knowledge and technology is far higher. Unfortunately, the human capital and knowledge resources in many developing countries are too low even to use foreign technologies efficiently. It is significant that many of the major development successes in recent decades—China, South Korea, Taiwan—are also countries that have invested very substantially in human capital and knowledge, both domestically and by sending hundreds of thousands of students for higher education to the USA, Europe, Japan, and Australia.

The importance of chance is also reflected by the sizable Swedish migration to America during the second half of the 19th century. This made it possible to urbanize at a rate that was consistent with industrial development. It is estimated that a quarter of the Swedish population (1.2 million people) emigrated between 1850 and 1910. As a result, Sweden avoided the worst problems related to rural poverty and mass unemployment: it is also likely that this helped avoid political problems caused by polarization between left and right (see Haavisto and Kokko 1991).

2.4 Sustaining success in raw material-intensive sectors: the forest industry

The rapid expansion of Swedish industry after the 1870s depended crucially on favourable initial conditions in the form of an institutional structure that was more sophisticated than required to maintain the country's income level: for example, Sandberg (1979) refers to Sweden before the First World War as an 'impoverished sophisticate'. The resulting excess capacity in the innovation system facilitated learning, knowledge development, and commercialization of innovations, and made it possible to quickly grasp the opportunities that emerged as a result of unforeseen technical breakthroughs during the second half of the 19th century. The importance of most of the elements making up the Swedish institutional environment at that time—property rights, education, rules and regulations, incentives, and outward orientation—is commonly recognized. However, excess capacity is not commonly proposed as a characteristic of successful innovation systems. Instead, it is often seen as an indication of inefficient investment decisions and wasteful use of resources. This raises the question to what extent the experiences from the Swedish industrialization process can be generalized. When is it motivated to invest in excess capacity and is excess capacity needed to sustain success or competitiveness?

A look at the innovation system contributing to the sustainability of the Swedish forest industry may provide some tentative answers. The industrial breakthrough for the industry started between the 1850s and 1880s, with an export boom for wood products, as discussed above. From the 1880s, after the introduction of chemical pulp technology, pulp and paper emerged as another core export sector. Today, some 130 years later, the forest sector remains a prominent part of the Swedish economy. Sweden is among the world's five largest exporters of paper and the third largest exporter of sawn wood products. The net exports of forest products (gross exports minus the sector's import value) are larger than the aggregate net exports of automobiles, electronics, telecom, and pharmaceuticals. Altogether, the forest industry also accounts for some 13–4 per cent of value added and employment in the Swedish manufacturing sector. The industry's production technologies have steadily grown more sophisticated, enterprises have specialized in processes with strong economies of scale, and shifted their focus towards new products with higher value added. As a result, labour productivity has grown fast enough to match the continuous increases in labour costs: this has allowed the industry to maintain its competitiveness in an environment where technologies, competition, and demand conditions have been changing continuously.

The ability to adjust and restructure successfully has depended crucially on the institutions and human capital created by the forest industry's innovation system, just like the success of Swedish industrialization depended on the national innovation system built up prior to the industrial takeoff. However, there are some notable differences between the two cases. While the specific technological innovations leading up to the industrial breakthrough were in principle impossible to foresee, it has over time been possible to identify the main challenges for the forest industry. These are related to the protection of the raw material base and the development and dissemination of the new technologies and skills needed to survive in a changing world. Identifying the key challenges has allowed a concentration of institutional resources to handle these issues and reduced the need to maintain excess capacity in areas that are not of central importance. One example is forest management, it was recognized early on that a depletion of the raw material supply was a serious threat to the sustainability of the industry: the demise of the Norwegian wood industry in the mid-19th century illustrated the dangers. The first modern forestry laws were therefore introduced already in 1903 and mandated replanting after each harvest. Over time, the forestry laws have come to cover additional objectives, such as environmental considerations. Today, all forest owners are required to prepare a forestry plan, outlining expected thinning, felling, replanting, and other operations. The regulations and requirements are combined with fiscal incentives and training and extension services provided by the public sector as well as cooperative forest owners' organizations. The cooperatives are especially important for the diffusion of new technologies among forest owners: in addition to education and training, they also provide forest management services to the growing group of owners that has moved to the cities and lack both the time and skills to actively work on their lands. The results of these targeted institutional investments have been highly successful. The growing stock of timber in Sweden is estimated to be at least twice as large as one century ago, when the first laws requiring replanting were introduced, and the stock is still growing. Similar institutional investments have been made in knowledge creation and management, as will be discussed shortly.

Another distinguishing feature of the forest industry's innovation system is that it has not been able to draw heavily on experiences from other countries, since Sweden has been one of the industry's technological leaders since the late 19th century. To maintain

its leading position, Sweden has therefore been forced to invest more in R&D with uncertain returns than countries that have been able to benefit from technological benchmarking and convergence. Moreover, to stay in the lead, it has been necessary to maintain a readiness to respond faster than others to changing market conditions. Taken together, these requirements have translated into a need for excess capacity in skills and knowledge.

A sophisticated network or cluster of organizations involved in the development of new technology, knowledge, and skills has therefore emerged over time, and has become the main competitive advantage of the Swedish forest sector. This network—which corresponds roughly to Lundvall's (1992) narrow definition of an innovation system[4]—included at its peak in the late 20th century well over 100 highly specialized research and training institutes in a wide array of fields covering the entire value chain from the forest to the final consumer. Taking the pulp and paper sector as an example, Table 2 illustrates some of the core institutions in the sector's innovation system at the end of the 20th century: since that time, the number of organizations and institutions has diminished as a result of several mergers.[5] The table distinguishes between two dimensions of the system (see Ds 1991: 62). One dimension focuses on the outputs of the innovation system, which can be skills or knowledge. Skills are embodied in people and generated through various types of education and training. Knowledge is a public good that is generated by research and development activities, and can be transferred from person to person through various means of communication—lectures, scientific articles, handbooks, manuals, and so forth. The other dimension distinguishes between institutes and organizations that create skills and knowledge and those that disseminate skills and knowledge: while there is some overlap, these are distinctly different tasks that are typically undertaken by different actors.

The main characteristic of the pulp and paper industry's innovation system is that all of the four functions of the innovation system illustrated in Table 2 are strongly represented. This is one of the great strengths of the industry, and contributes not only to technical progress and innovations, but also to the efficient dissemination of innovations. Another feature is that the investments in this knowledge cluster are increasingly concentrated and coordinated. The high fixed costs in the pulp and paper industry have acted as entry barriers and contributed to the emergence of an oligopolistic market structure, where mark-ups are high enough to allow large corporate investments in R&D. Much of the research and training taking place in universities and the industry's research institutes is conducted in various networks and other collaborative arrangements, often including participation from the industry.

Regarding the creation of education and skills, most of the leading Swedish universities provide university training for engineers specializing in pulp and paper processing and related fields. Since the mid-1990s, the universities also have a network for postgraduate education in collaboration with the main industrial research institutes, the

---

4 The narrow definition of an innovation system refers to the 'organsations and institutions involved in searching and exploring – such as R&D departments, technological institutes and universities'. See Lundvall (1992: 12).

5 For example, The Pulp and Paper Research Institute merged with the Swedish Packaging Research Institute in the late 1990s, and changed its name to Innventia in 2009.

Pulp and Paper Research Institute (PPRI) and the Institute for Surface Chemistry. This network is known as the Forest Products Industry Research College (FPIRC) and includes all Swedish universities with specialized PhD level education in pulp and paper technology. As a result, there is a sufficient supply of highly educated manpower for the pulp and paper industry. About half of the engineers recruited by the industry have formal training focusing on pulp and paper technology, but the increasingly sophisticated production technology requires an increasing number of specialists from other fields as well. Partly for that reason, the PPRI itself manages shorter specialized training courses for industry professionals. In addition, the institute is actively involved in the various academic programmes by financing student research projects, arranging guest lectures, and providing lecture rooms and equipment.

Table 2: Participants in the knowledge cluster of the paper and pulp industry

	Generation	Dissemination
Skills	FPIRC	PPRI
(Education)	PPRI	
	Institute of Surface Chemistry (YKI)	
	Individual companies	
Knowledge	FPIRC	PPRI
(Research)	PPRI	Institute of Surface Chemistry
	YKI	Graphical Research Laboratory
	Graphical Research Laboratory	Swedish Packaging Research Institute
	Swedish Packaging Research	Swedish Newspaper Mills' Research
	Institute	Laboratory
	Swedish Newsprint Mills' Research	
	Laboratory	
	Individual companies	

Note: FPIRC is a network of all Swedish universities providing higher education in pulp and paper technology. The members include the Royal Institute of Technology, Chalmers University of Technology, Lund Institute of Technology, Linköping Institute of Technology, Umeå University, Luleå University of Technology, Mid Sweden University, and Karlstad University.

The universities participating in the FPIRC also account for a sizable share of the non-corporate research activities in the pulp and paper sector. Most of the basic research originates in the university system, in the form of Master's and PhD projects as well as research by regular academic staff. PPRI is the other major research producer in this part of the knowledge cluster—with nearly 200 qualified researchers, it is one of the largest research institutions of any kind in Sweden, and recognized as one of the internationally leading centers in its field. Research is also conducted at several of the industry's smaller collective research institutes, such as the Institute of Surface Chemistry, the Graphical Research Laboratory, the Swedish Packaging Research Institute, and the Swedish Newsprint Mills' Research Laboratory, to mention but a few of the dozens of research organizations that existed in this area in the late 1990s.

In addition to the activities that take place in each of the research institutes, there has been an increase in collaborative research projects undertaken in various networks involving several of the industry institutes. For instance, a notable share of the industry's present research is concentrated to three networks known under the acronyms T2F (printing technology), S2P2 (*Surface Science Printing Program*), and FSCN (*Fibre*

Sciences Communications Program). A fourth programme, BiMaC (*BioFibre Materials Centre*) includes both pulp and paper technology and wood technology. Each of these include academic institutes as well as industry research institutes and individual firms, each has a long term perspective on research, and is jointly funded by the state and the pulp and paper industry. Swedish research is world-leading in many of these fields, and the generation of knowledge in the pulp and paper industry is highly efficient in comparison with that undertaken in most other countries. To the extent that industry voices objections to this argument, the most typical complaint is that much of the knowledge created today is not yet relevant for the industry's needs, and that it may take five to ten years before it will have any practical impact on operations (Ronne 1996). This is one indication of the excess capacity that is created in the short run—in the long run, some of this capacity is of course expected to contribute to the industry's competitive advantages.

Almost all of the industry's research institutions are involved in the dissemination of research results, and it is generally assumed that technology transfer is highly efficient because the industry's general level of education and skills is high. One reason is that the PPRI took the lead at an early stage in transferring skills from the academic institutions to the industry. To this end, the PPRI has acted on two fronts. On the one hand, it has attempted to stabilize the demand for engineers and researchers by recruiting skilled labour during slumps in the business cycle. These recruitment activities have largely been financed by the pulp and paper industry. On the other hand, PPRI has encouraged the industry to employ skilled labour, both by providing information about various types of education to the industry, and by influencing the content of higher education in the direction of the industry's demand. The result has not only been efficient diffusion of skills and knowledge from academia and research institutes to the industry, but also increased demand for higher education from students: with good job opportunities, it has appeared to be safe to invest in long university programmes focusing on pulp and paper.

In this regard, it can be argued that the innovation system in the pulp and paper industry makes up a model for other sectors as well. For instance, one commonly identified complaint in the wood products industry concerns a shortage of academically educated staff in sawmills and other firms (Ds 1991: 62). Without the necessary skills, companies are not able to keep pace with technological developments and changes in the competitive environment. Even if the research organizations manage to generate product and process innovations, there is a risk that few individual firms will recognize the opportunities and adopt the innovations. This problem is caused by the weak dissemination of skills from the universities to the industry: in the wood products industry, there is no institute playing the role of PPRI to promote the career prospects for advanced wood technology graduates. This notwithstanding, the existing knowledge cluster in the Swedish wood products sector is still more advanced than that found in most other countries (with the possible exception of Finland) and it has played an essential role in allowing that industry to adjust to the continuous changes of its competitive environment.

One conclusion from this brief look at the forest industry's innovation system is that excess capacity in the form of continuous investment in knowledge and skills is a precondition for long run competitiveness. In the forest industry it has been possible to foresee some of the major challenges, and it has therefore been possible to concentrate investments to the relevant areas. By focusing on two main objectives—to secure the

long run supply of raw materials and to generate the knowledge and skills needed to adjust product and process technologies to changing market conditions and increasing competition from new entrants in the global market—the industry has been able to reach and hold on to a leading position. The amount of skills and knowledge required to stay in the lead is very substantial: the leader has to respond faster than its competitors to the changes in the market environment. In the long run, this may be impossible without the flexibility afforded by knowledge and institutional capacity in excess of what is required to handle the current challenges. To remain competitive, the forest industry has been forced to become a knowledge-intensive industry.

The transformation of the forest industry from a resource- to a knowledge-intensive sector also bridges the gap between the raw material-based industries that were crucial for the early stages of industrialization and the technology-oriented industries that form the core of today's knowledge economy. In the Swedish case, there is no major contrast between the paper industry and, say, the telecommunications industry: the success of both requires efficient innovation systems and sophisticated technologies and knowledge. While the products of the forest industry may look simple, the production processes are not: a modern paper-making machine contains as much high-technology as an airplane. Hence, one of the insights from Swedish industrial development—from the industrialization process itself to the subsequent development and competitiveness of high-technology industries—is that human and institutional capacity determine long term success. Access to abundant supplies of raw materials is a blessing that may facilitate the development process. In combination with appropriate investments in knowledge and institutions, they may even become a permanent feature of a highly developed knowledge economy.

3 The welfare state

Although the state plays a more important role in Sweden than in most other countries—with over 50 per cent of the GDP channeled through the public sector—it is notable that the state is hardly involved in manufacturing or primary production. Instead, the main role of the Swedish state is related to welfare and redistribution (Kangas and Palme 2005). The Swedish welfare state is built on the principle that all residents have equal rights to education, health care, and social insurance, irrespective of their individual income, wealth, or social position. To guarantee access, the state has taken on the main responsibility for financing these services (but it is notable that the services are increasingly produced by private providers). Nearly two-thirds of government expenditures are therefore used for education, health care, social insurance, and redistribution. Although the costs for the welfare state are high, it has been possible to combine equity with growth and development. Sweden has not only managed to develop from one of Western Europe's poorest countries to one of the most prosperous, but it has also performed relatively well in recent years. Economic growth has exceeded the EU average during the past decade, and unemployment has been low in a European comparison. Export competitiveness has been strong, with the aggregate world market share of goods and services growing over the past decade. Another indication of the overall competitiveness of the economy is that Sweden has been ranked among the top five countries in the World Economic Forum's *Global Competitiveness Report* during the last few years.

The history of the Swedish welfare state is closely connected to the country's industrialization, in several ways. One link is that industrialization and the welfare state have some common roots. The new constitution established in 1817 reflected liberal thoughts that were important as a foundation for the industrial revolution during the second half of the century, but it also included political ideals from the French and American revolutions about human rights and freedom. Another link is found in the emphasis on knowledge and skills during the 19th century. The introduction of compulsory primary education and expansion of education at higher levels were not only valuable from the perspective of social rights and social mobility, but also a necessity for the development of industry. A small labour scarce economy like Sweden could not have industrialized without the concern for human capital. Most importantly, however, industrialization created a need for some type of a welfare state by raising the level of risk and uncertainty for individual households.

As long as Sweden remained a primarily agricultural economy with the majority of the population in rural areas, there was little need for any comprehensive welfare state. In the pre-industrial society, the household was the center of social and economic activity, and the challenges facing individuals were primarily handled within the household. Most Swedish farmers were freeholders (unlike farmers in many other parts of Europe where feudal traditions were strong), and the fact that they controlled both their own labour and land meant that they had substantial flexibility regarding production decisions. This flexibility meant, for example, that each household member's work input could be used productively, even if it did not amount to a full working day. Each household cared for its children and elderly, and although the work input of the oldest family members was often limited, it was important at the margin. For instance, elderly people contributed to household incomes by caring for the children, so that adults could devote their labour to farming and other productive activities. Technologies were simple, and the skills needed to sustain the farming system could be passed from parents to children.

The role of the household was somewhat weaker in the cities, where the guilds took on some responsibility for education and social security and the state provided substantial security for public servants. However, Swedish cities were small before the industrial revolution. The most vulnerable groups—the landless, the disabled, orphans, widows, and others without a family—had some access to rudimentary social security through the public sector: in most cases, the church (which was intimately linked with the state) was responsible for basic social services. The great weakness of pre-industrial society was related to health. Specialized medical skills were rarely availably, many diseases could not be cured, and infant mortality was high. This was reflected in a low life expectancy, which did not reach 50 years until the end of the 19th century.

3.1 Social welfare and industrialization

The traditional social structure began to disintegrate with the industrialization process. The shift from subsistence-based farming to industrial production meant that households lost control of their working capital (i.e. their land). New vulnerabilities were created when former farmers began to work for entrepreneurs, who controlled the industrial capital stock and financed their investments by borrowing from banks and capital owners. In particular, it became difficult to adjust to situations where the external demand for labour diminished, and situations where a working household member fell ill—these cases led to income losses that threatened the livelihood of the household.

Job-related accidents were common, with severe consequences for the household. Urbanization made the situation of the elderly more exposed, since few households in the city had dwellings that allowed several generations to live together. Urbanization also had consequences for public health: infectious diseases were a more severe problem in densely populated cities than it had been in traditional agrarian societies. Education became more important as more specialized jobs were created. Those with suitable skills and capacities could find better jobs with higher incomes and more job security.

There was no doubt that a stronger social protection system was needed, both for humanistic reasons, to provide a more secure livelihood for vulnerable population groups, and for political reasons, to maintain social stability. The widespread poverty that emerged each time the demand for labour diminished resulted both in increased social problems as well as political protests as workers began to organize. The limited social services provided by the church were insufficient to balance the higher risk level in society, and the government had no instruments to stabilize the swings in the economy that where driven by lags between investments and production or other variations in the business cycle.

In 1843, the Swedish economist Jacob Lundell published an article where he suggested a new role for the government (see Olofsson 1997). His idea was that economic development could be smoother and more predictable if the government provided education and employment services, so that workers could more easily be allocated to sectors that demanded labour. Moreover, this would also result in a more equal distribution of prosperity, reducing social tensions. In other words, Lundell saw welfare institutions as a requirement for the development of the market economy. However, at that time, the dominant economic ideas had a bias towards a laissez-faire economy, where the state's role was limited to protecting private property rights, and it would take more than 100 years before Lundell's visions were realized. Still, the roots of the welfare state had been established already at this time.

During the second half of the 19th century, economic inequality increased as market-oriented agriculture and industrialization accelerated, and the expansion of international trade created vast fortunes among entrepreneurs and capital owners. As noted earlier, these achievements were related both to external demand and to fundamental reforms in the legal sphere, where new business laws were made and education at various levels, from primary schools to technical universities and colleges was enhanced. Developments in social policy were slower. Although workers began to organize in labour unions and political parties already from the 1880s, they had little influence at the policy-making level. One reason was that voting rights were related to ownership of real estate and property. At the beginning of the 20th century, only 10 per cent of the population was allowed to vote in national elections, and women had no vote at all. This notwithstanding, the labour organizations contributed to the establishment of voluntary unemployment and health insurance programmes, and put heavy pressure on employers to accept collective agreements in the labour market.

The pressure from the labour unions and the Social Democratic party (which had been established in 1889) started yielding some results during the first decade of the 20th century. The first collective agreements, regulating not only wages but also working times and working conditions, were signed in 1905. The right for workers to organize in labour unions was established in an agreement the following year. Universal suffrage

for men was introduced in 1909. Women had to wait another ten years before they won the right to vote. The first steps towards the creation of a welfare state were also taken in the form of a universal pension insurance system introduced in 1913, and an insurance scheme for work-related injuries covering the entire work force in 1916. The establishment of general health insurance was also discussed at this time, but the plans were not realized for several decades because of the economic crisis following the First World War (Edebalk 2000).

The economic plight caused by the war not only slowed further welfare reform, but it also sustained the tension between labour and capital, which had already resulted in several large strikes and lockouts during the first decades of the 20th century. However, the socialist revolutions in Russia and several of its border nations had a strong impact on the Swedish political landscape. The fear of a similar development motivated the Swedish conservative parties to seek collaboration with the main left wing party, the Social Democrats. This resulted in the improvement of labour conditions in the industrial sector, for example, a law limiting the working day to eight hours in 1919, and a law establishing the role of collective agreements a decade later. However, the Great Depression in the late 1920s complicated this type of collaboration. Industrial production contracted and unemployment soared throughout the world when countries turned to beggar-thy-neighbour policies and raised barriers to international trade and capital flows. In the Swedish case, the Great Depression culminated in a severe political crisis when the military opened fire on a labour demonstration in the village of Ådalen in 1931, killing five workers. The event strengthened the labour movement, and the Social Democrats advanced in the elections the following year, forming a coalition government with the agricultural party. In terms of national politics, this can be seen as another cornerstone in the creation of the Swedish welfare state.

3.2 First steps towards a welfare state

The new government acted in two areas. First, the Social Democrats were inspired by Keynesian ideas and introduced expansionary fiscal policies to maintain aggregate demand and reduce unemployment. The main areas for government-led employment programmes were infrastructure and housing construction in the growing cities. Second, important reforms were made in labour legislation, health care, education, and other social areas. These included increased pensions, voluntary unemployment insurance, statutory vacation, support to widows and orphans, and improvements in maternal health care. The new political climate was also manifested in labour market relations. From 1938, the labour unions and the employers' federation institutionalized a system where wages and other labour market related issues (including some social insurance programmes) were negotiated at the central level. This system contributed to the consensus-based political relations that characterized the Swedish welfare state during the second half of the 20th century. It also contributed to a relatively high degree of income equality, since most wage agreements mandated a relatively small gap between the minimum and maximum incomes.

The remaining building blocks of the welfare state were added after the Second World War. Sweden had not taken an active role in the war and the Swedish industrial sector was therefore intact when the war ended in 1945. The subsequent reconstruction of Europe led to a boom for the Swedish manufacturing sector. The combination of rapid economic growth, continued worries about social and labour market conflicts, and a social democratic government with close relations to the labour unions provided a solid

platform for further expansion of the welfare state. In particular, there was the belief that society could afford a more generous social security system. Another increasingly important political goal was to mitigate inequality. Consequently, new reforms were introduced during the decade following the Second World War. The Social Democratic government established a child allowance covering all children and housing and study allowances, a universal health insurance system was introduced, unemployment insurance was extended, pensions were reformed, education investments grew, and regional transfers were built into the system. Particular efforts—mainly related to the establishment of an extensive system of public childcare—were made to facilitate female labour force participation.

To finance these reforms, taxes were increased to relatively high levels. The largest part of the tax burden was on labour (and consumption) rather than on capital (and production)—in fact, Swedish capital taxation was not very high in international comparison. Income taxes were progressive, emphasizing the egalitarian nature of the system. Apart from the healthy growth of the economy, the universal character of most welfare benefits was of utmost importance to explain the general acceptance of the increasing tax burden. The fact that most benefits were (and are) available for all residents in the relevant population group (irrespective of income) meant that tax payers could rely on receiving something in return for their taxes. For instance, most families understood that the expensive public childcare system was important both for female labour force participation (since women did not have to stay at home to take care of their children) and as a source of jobs. It is also important that Sweden avoided a situation where the poorest groups were at the mercy of the generosity of the ruling political elite. The emphasis on ‘rights’ rather than ‘benefits’ reduced social gaps and avoided the stigmatization that may follow from identifying ‘poor’ groups. Moreover, administrative costs were kept low since there was no need for targeting. The social stability that was created by the welfare state functioned very well for several decades, raising the income and living standard of the Swedish population to a top three position in the international per capital income list by the 1970s.

At its height, in the early 1980s, the Swedish welfare state rested on three important core components: a public education system without tuition fees, a public health care system that guaranteed all residents the best available care with only nominal user fees, and a generous insurance system covering income losses due to unemployment, ill health, and old age. Over time, the views regarding the welfare state had changed, from the common attitude in the 1950s that it was a by-product of economic growth, to the view that the welfare state and its social security system is a requirement for economic growth and social stability.

At the same time, for its sustainability, the system assumed a high level of economic growth and a high labour market participation rate. By the 1980s, it was increasingly clear that these assumptions were no longer appropriate. Decreased birth rates and longer life expectancy meant that an increasing share of the population was outside the labour force. The generous welfare benefits in combination with high personal income taxes may also have reduced the incentives for work. The result was a reduction in the growth rate of the economy, which put heavy pressure on the system. From the early 1990s, a number of reforms were therefore introduced in order to re-establish the balance between costs and revenues. In particular, these focused on strengthening work incentives through a reduction in personal income taxes and cuts in the cost and benefit levels of the pension and health insurance programmes. However, the questions

discussed during the reform process did not concern the existence of the welfare state, but rather its form and organization. The common belief in Sweden is still that the welfare state is a prerequisite for stable economic and political development, and the economic recovery that has taken place during the past decade seems to corroborate this view.

An early insight from the Swedish experience is that the optimal structure and nature of the welfare state varies with the characteristics of the economy. The economy's growth rate and income level, the population structure, and the political structure are some of the variables that determine the shape of the welfare state. The solutions for different parts of the welfare system will also vary depending on these determinants. To illustrate some of these differences, the following sections briefly look at how the main building blocks of the Swedish welfare state—the education, health, and social insurance systems—have developed during the past century.

3.3 Education

The history of the formal education system in Sweden dates back about 1,000 years, and has its origin in the introduction of Christianity. The first schools were established by churches and monasteries to educate priests and other church officials. The so-called 'cathedral schools', the oldest of which was established in Lund in 1075, also prepared students for university education abroad (mainly Paris and some of the first German universities). Sweden did not have any universities until the 15th century, but the cathedral schools in Lund and Uppsala gradually upgraded their standards and began providing higher education in the late Middle Ages. The oldest Swedish university, in Uppsala, was established in 1477, while Lund University was established in 1668. Aside from theology and law, the universities also had faculties of medicine and philosophy, but sciences did not take on a strong role until the second half of the 18th century. The development of higher education accelerated during the 19th century, when several new universities and technical colleges were established: as discussed above, these investments were largely related to the expected demand for skills in connection with the early stages of industrialization.

Several institutions for education at lower levels had already been established by that time. A system of lower and upper secondary schools was set up in the early 17th century to replace the cathedral schools. The first law mandating some primary education was introduced in 1686. Each priest was responsible for educating his parish in Christianity, which included the ability to read the bible. A government resolution in 1723 stated more explicitly that all parents should teach their children to read. The formal primary and secondary schools of this time were to a large extent financed by the municipalities and the church, and focused on the middle class. The primary and secondary education of the upper class was the responsibility of private teachers. The quality of teaching varied greatly, but the young men of the nobility were for a long time guaranteed seats in the academies irrespective of their educational background. An important step towards equality in higher education was taken in 1693, when university entrance exams were introduced for all prospective students.

In 1842, Sweden introduced compulsory primary schooling, as noted earlier. Each municipality or parish was required to set up at least one school with at least one teacher, financed by the local authorities. State subsidies to primary schools in poor municipalities were introduced about one decade later. Although the education provided

by the compulsory primary schools was simple (and initially strongly influenced by the church), and although the rate of seasonal absenteeism was high (since children were needed as farm workers), it was successful in diffusing basic skills in reading, writing, and arithmetic. Within a few decades, almost the entire population was literate. Only a few per cent of the students continued to secondary school or other forms of higher education, but the relatively strong human capital base that was established contributed significantly to the rapid industrialization of the economy during the second half of the 19th century.

The following decades witnessed a gradual strengthening of the education system, with an extension of compulsory primary education to seven years, and several types of schools established at the secondary level, with theoretical as well as vocational orientation. Some of the secondary schools were financed by the state, while others were private. However, upper secondary education remained socially segmented until the end of the Second World War and the few students continuing to tertiary education were mainly from more affluent population groups. The main obstacles for students from poorer families were not the formal tuition fees, but rather the living costs and the opportunity costs in terms of foregone labour income.

During the decades after the Second World War, public investment in education increased, with an expansion mainly at the upper secondary level. Compulsory education was extended to nine years, and efforts were made to promote higher education among students from less privileged backgrounds. Formal tuition fees were dropped and an extensive support system with subsidized student loans was introduced. The expansion of the education system was one of the main components in the construction of the Swedish welfare state. The effects were seen on a large scale during the 1960s, when university education began to expand rapidly as the cohorts from the 1940s progressed through the education system.

Today, the Swedish public school system is made up of a compulsory part covering nine years of primary and lower secondary education, and a non-compulsory part including kindergarten (for children below six years of age) and pre-school (for six-year old children), upper secondary school, and tertiary education.[6] Almost all pupils continue directly to upper secondary schooling after the compulsory nine years and the vast majority of those graduate after three additional years. In 2002, 43 per cent of all pupils finishing an upper secondary level education continued to higher level studies (university).

Primary and secondary education is free for all pupils.[7] The government finances not only the education itself but also transport, books, and meals. It should also be noted that the opportunity costs of upper secondary education have been reduced dramatically during the past decades. In principle, decisions about upper secondary study do not have to take into account any foregone earnings from paid employment, since it is almost impossible to find a job in Sweden with only lower secondary education. Most universities and post-secondary institutions are run by the state and are also free of charge. However, at the tertiary level, meals, books and travel cost are not directly

6 Some adult secondary schooling programmes also exist within the public schooling system.

7 There is a fee for childcare/kindergarten and pre-school for children below the age of six.

covered by the state, although all students qualify for subsidized loans to cover their living costs.

There is a broad consensus in Sweden that education should be free and equally distributed to all citizens irrespective of location and family income. There are several reasons for this. First, there are no strong reasons to believe that pupils from richer families are generally more intelligent than pupils from poorer households. Therefore, from an economic efficiency point of view, with equal access to education the distribution of pupils to different programmes and subsequent job positions will be efficient. Moreover, from a social perspective, equal access reduces the social tensions that are likely to occur if only wealthier households have economic resources to send their children to school and subsequently to higher education. Hence, unequal education possibilities will not only lead to inefficient resource allocation, but may also trigger social conflicts that are harmful for the society as a whole. The Swedish domestic support for an 'everything-included and free-for-all' education system has not been seriously challenged since it was introduced in the 1950s.

In total, the public expenditure on education amounts to almost 8 per cent of the GDP, which is among the highest levels in the world. Most of the funds are used for public schools and universities, but pupils are also free to attend independent schools that are often operated in accordance with some special pedagogic idea or by some specific interest group. These are also financed with public funds.

During the 1990s, the concept of lifelong learning has received increased attention. The idea is that all adults should have the right to achieve a secondary level degree. A sufficient level of education gives people the possibility to participate more actively in society and rising levels of education may fill knowledge gaps. Moreover, with a relatively high minimum level of education, the possibilities to adjust the production structure according to a more knowledge-intensive economy are greatly improved. To achieve an increased education level among adults, a wide range of educational opportunities are available. The most important recent programme was a five-year project labeled the Adult Education Initiative launched in 1997. It is estimated that roughly 10 per cent of the total population benefited from this programme. The impact of the Adult Education Initiative is reflected in Table 3, which shows that the share of residents attending training programmes lasting at least four weeks was remarkably high in comparison with the EU average in the late 1990s.

Table 3: Share of population aged 25–64 in training programmes, 1996–2001 (in per cent)

	1996	1997	1999	2000	2001
Sweden	26.5	25.0	25.8	21.6	17.5
EU	5.7	5.8	8.2	8.5	8.4

Note: Covers only programmes that are four weeks or longer.
Source: Eurostat (various years, various issues).

3.4 Public health care

Health care and medical care form the second basic pillar of the Swedish welfare system. The principle underlying the Swedish health care system today is that health and medical care should be provided on equal terms and according to the need of each individual. The financing of health care is based on solidarity and not viewed as a

matter of social insurance, but rather as a matter of public interest. Hence, health care costs are mainly financed by taxes rather than fees or insurance. Overall, the public sector accounts for about 90 per cent of all health care expenditures, with private financing covering the remaining 10 per cent. The private share is mainly used for dental care and medicines, with formal user fees for health care only accounting for some 3 per cent of the sector's total costs.

The questions discussed in the Swedish health care debate are not mainly related to 'Who should pay?', but rather focused on what level of health care services the public system should guarantee, and how the services should be organized and delivered to the public. These are critical issues, since there is a tendency for health care costs to increase over time. One reason is the changing population structure. In 1950, 10 per cent of the Swedish population had reached the age of 65. Today the corresponding figure is 17 per cent. Demographic predictions indicate that in 2030 nearly one-fourth of the Swedish population will be over 65 years old.

It is estimated that the public expenditure per capita for retired people is about three times higher than for people in the labour force (Edebalk 2004). Although some of the differences are driven by the costs for pensions, it is also clear that medical care of the elderly is taking an increasing share of the budget. This is illustrated in Table 4 that shows how Swedish health care costs have developed over the past century. In the early 20th century, health care was largely privately financed and public resources were used to support simple health care services for the very poorest. Life expectancy was low, largely because of improper nutrition and diseases. The lack of cures and medicines kept the health care budget relatively low. Over time, several parallel developments have occurred. New cures, equipment, and treatment methods have been developed and health care costs have increased in tandem. With an aging population these changes have made health care financing increasingly important.

Table 4: Health, life expectancy, doctors, and income in Sweden, 1900–2000

Year	Health care costs/GDP (per cent)	Life expectancy, years	Medical doctors per 1000 citizens	Per capita income, USD (2000 prices)
1900	0.6	51	n.a.	2,400
1920	1.0	56	n.a.	3,400
1940	1.9	64	n.a.	5,600
1960	5.4	71	0.9	9,500
1980	9.5	73	2.2	16,200
2000	7.7	77	3.2	22,400

Sources: LIF (2004), Statistics Sweden (various years, various issues), Socialstyrelsen (2001), OECD (2005), Edvinsson (2005).

Until the Second World War, the financing responsibility remained largely with households, although various insurance systems were developed to reduce the financial risks connected to health problems. One exception was the area of *public health*. Given the limited budget resources of the state it was believed that costs for providing the best available care to all patients would simply have been prohibitive. A better way to use scarce public resources was to focus on prevention, to reduce the incidence of disease and ill health. Hence, the public health programmes introduced during the 1930s not

only focused on traditional areas, like primary health care and maternal health, but also on hygiene and sanitation, housing standards, and nutrition. However, after the end of the Second World War, health care became an issue with strong political connotations. Those who could afford treatments and medicines had a chance to get cured, while those who could not afford it were left suffering. This was clearly contrary to the egalitarian visions of the Social Democratic policy. During the 1950s, the responsibility for health care therefore shifted to the public sector. The introduction of universal health insurance in 1955 marks the completion of this transition. In its early stages, it included protection both for health care costs and for income losses during illness—over time, the financing of health care costs has shifted from health insurance to the central government budget. As a result, the health care sector has become highly centralized in terms of policies and financing.

In 2002, the total cost for the Swedish health care sector amounted to over 9 per cent of the GDP. Roughly 20 per cent of the expenditures are directed to primary care. Specialized physical care accounts for roughly 60 per cent of total health care and medical expenditures. Another 10 per cent are used for specialized psychiatric care. The remaining share is used to cover expenditures for other health and medical care, dental care, and other activities, for example information campaigns (Ministry of Health and Social Affairs 2005). While the total costs for this system may appear to be very high (in 2004, the per capita expenditure for health care exceeded USD 3,000), it is not remarkably high in comparison with other developed economies. In terms of costs and cost control, it appears that different institutional and organizational solutions seem to generate very different outcomes. Table 5 provides a comparison of health care costs and some health indicators for several advanced industrialized economies. It can be seen from the table that countries like the US have much higher health care costs, although neither the number of doctors per capita, life expectancy, nor the share of old people is any higher than in Sweden.

Table 5: Health care: an international comparison, 2002

Country	Health care costs/ GDP (per cent)	Public sector financing of health costs	Medical doctors per 1,000 citizens	Life expectancy	Population > 79 years old (per cent)
USA	14.6	44.4	2.4	77	3.3
Germany	10.9	78.2	3.3	78	4.0
France	9.7	76.3	3.3	79	4.1
Sweden	9.2	85.2	3.0	80	5.2
Italy	8.5	75.1	4.4	78	4.4
UK	7.7	83.4	2.1	77	4.3

Note: Data refer to 2002 or closest possible year.

Sources: LIF (2004), Statistics Sweden (various years, various issues), OECD (2002, 2005), Statistics Sweden (2005).

3.5 Social insurance

Over time, the Swedish welfare state has created two distinct social insurance systems.[8] There is one public insurance system and one negotiated system that is related to labour market participation.[9] Public social insurance covers all residents of the country and provides a safety net in three different areas. The first area, *parental insurance*, is related to family policy, and aims to guarantee a reasonable standard of living for all children. It includes compensation for parents staying away from work to care for sick children, child allowances, and housing allowances for families with children below 18 years of age. The second area is *age related insurance*, which aims to guarantee a reasonable standard of living for elderly people. The main item in this category is the national basic pension, but there are also widow's pensions, housing allowances for elderly with low incomes, and various early retirement programmes. The third large component is *public health insurance*, where the main goal is to provide compensation for the income losses related to sickness. The benefits include sickness allowance, temporary disability pensions, disability pensions, early retirement pensions, and industrial injury compensation.

In terms of expenditures, the costs for the social insurance system amounted to about 17 per cent of GDP in 2002. Of this, *parental insurance* accounted for 18 per cent, *age related insurance* accounted for 41 per cent, and *public health insurance* for 32 per cent (Statistics Sweden 2004). The social security system, which provides support for individuals and families with special problems (related e.g. to long term unemployment) accounted for the remaining costs of the social insurance system.

Negotiated social insurance is built on agreements between the actors on the labour market. The negotiations are held at the central level (between representatives for the national labour unions and the national employers' federation) and cover the participants in the labour force. The negotiated agreements are complementary to public social insurance, although the distinction between the two forms of insurance is not always clear. Negotiated social insurance covers areas such as compensation in case of disease and occupational injury, unemployment benefits, income-related old-age pensions and death benefits.

The Swedish welfare system is mainly financed by various taxes (general taxes, taxes on employees, and taxes on employers). Table 6 shows how the costs of the social security system are divided between taxes on employees, employers and the government (central and local) in the form of general taxes (e.g. the value added tax) for a number of countries.

---

8 For a detailed description, see SOU (2001: 57).

9 In addition, there is compulsory third-party traffic (liability) insurance.

Table 6: Financing of social insurance, 1960–1990 (per cent of total costs)

	Taxes on employees		Taxes on employers		General taxes	
	1960	1990	1960	1990	1960	1990
Sweden	45	4	10	81	44	15
Finland	33	10	19	63	48	27
Denmark	44	8	0	2	56	90
Germany	47	43	41	43	12	14
USA	28	26	72	73	0	0

Source: SOU 2001: 57.

The general pattern in developed economies is that the financing of the social insurance system is increasingly connected to taxes on employers, while the relative importance of general taxes is decreasing. This is largely explained by demography. Over time, the costs of the pension system have increased in line with the increasing life expectancy, and these costs—as well as the costs for unemployment and health insurance, which are becoming more important—are largely financed through the labour market.

Parental insurance plays an important role for the Swedish model through its impact on the labour market: women are to a large extent employed outside of the household. The high labour market participation rate for women is considered important for two reasons: equality and tax revenue. Having independent income (that is taxed separately from their spouse's income), women are able to become more independent than in systems where they depend on their husband. A high employment rate is also necessary to generate tax revenues to finance the welfare state. Given the ability of capital owners to move their resources to alternative locations—countries that offer lower taxes—Sweden has avoided taxing capital, and instead focused on taxation of labour income and consumption (through the value added tax).

The development of the pension system is an important illustration of the principle of universalism. In 1913, Sweden introduced a flat rate public pension system, which guaranteed a small annual monetary benefit to all elderly citizens. Although this so called 'people's pension' was small—in the 1930s, it corresponded to only 9 per cent of the annual net income of industrial workers—it was important in two ways. First, it provided a limited but important financial contribution to all households with elderly members. The fact that the pension was not large enough to provide a sustainable living was typically not critical, since it was still common that children cared for their elderly parents. In many cases, particularly in rural areas, it was also important that it was a monetary contribution. Many rural households were subsistence-oriented, and pension funds made up a substantial part of their monetary purchasing power. Moreover, the poorest elderly people, e.g. those without relatives, could receive some supplementary support—over time, this supplement came to apply for the majority of retired people. Second, the pension was universal, setting a model for the subsequent development of the Swedish social insurance system in general. As noted earlier, universal benefits (that are not means tested) tend to provide a notable return to the middle class, who account for most of the financing in the form of tax payments. This helps to avoid situations

with a clear polarization between those groups that pay for public welfare and those that benefit from it (Edebalk 2000).

During the decades after the Second World War, the pension system was gradually reformed through increases in the guaranteed 'people's pension' and the addition of an earnings-related component that provided a higher pension to individuals whose tax contributions were larger.[10] Prior to a large pension reform in 1959, the earnings-related supplement was close to zero but has grown increasingly important since that time. Table 7 shows how pension replacement ratios, i.e. pensions as a share of work incomes, have developed since 1930.

Table 7: Pension replacement ratios in Sweden, 1930–2000

Year	Average annual 'people's pension' net of taxes as share of AIW income net of taxes	Average public pension (including supplements) net of taxes as share of AIW income net of taxes
1930	9%	n.a.
1950	22%	n.a.
1960	28%	28%
1980	49%	72%
2000	36%	62%

Note: AIW = Average Industrial Worker.

Source: Statistics Sweden (various years, various issues), Kangas and Palme (1989).

A first point to note is the low replacement ratio for the guaranteed people's pension until the 1960s. The low level of benefits was motivated by cost considerations: it was believed that these were the maximum levels that could be financed given the existing tax base. A second point is the increasing replacement rate for the total pension package, including the earnings-related supplement, until the 1980s.

Until the 1990s, the system was in principle a pay-as-you-go plan, where the current contributors funded the pension payments to retired beneficiaries. However, it soon became clear that the combination of an aging population and decreasing productivity growth would put severe pressure on the system. It was estimated that the old pension plans would eventually have led to current pension expenditures exceeding 30 per cent of the GDP. The total tax burden needed to finance this would have created very substantial tax wedges, and resulted in large welfare losses due to even lower growth. There were also concerns about redistributive effects. More affluent population groups tend to study longer and live longer than poorer groups, and therefore pay during fewer years and collect pensions over a longer period. These observations suggest that pay-as-you-go systems where the pensions are determined by the earnings during a few of the best (income) years may lead to redistribution of income from the poor to the rich. It was therefore clear that the system had to be reformed.

10 The main reform related to earnings-based pensions came in 1959, and was known under the acronym ATP – Allmän Tilläggs Pension (General Supplementary Pension).

After long debates, a fundamental reform was introduced in the early 1990s to establish a closer link between current payments and future benefits. For instance, the income-related part of the pension is now based on the individuals' total income during all years of labour market participation (rather than the last few years when earnings are typically highest), and there is no automatic adjustment to inflation, but rather to the average work income in society. The monthly amount of pension benefits is not guaranteed, but instead calculated on the basis of life expectancy. If the average life expectancy increases, the monthly amounts will have to be reduced. Individual pension accounts have also been established, and some of the funds are invested according to the individual choices of the policy holders. However, shifting from a pay-as-you-go system to a funded system cannot be done without putting an extra burden on some generations. During the transition process, the working population must not only fund the pensions of the elderly people who did not accumulate any resources for a fully funded system, but also accumulate funds for their own pensions. It is therefore not surprising that the Swedish replacement ratios have diminished since the 1980s, as shown in Table 7.

Health insurance makes up the second largest component in the Swedish social insurance system, after retirement pensions. Health care costs are in principle covered through the general budget. The main function of the present health insurance is to protect against the income losses caused by ill health. Like many of the other major components of the Swedish welfare state, universal health insurance was introduced in the 1950s. Before that time—in fact, already from the 18th century—there had been various private health insurance plans covering parts of the population. Most of these were limited to members from specific professions or even specific companies (the most favourable conditions applied for state employees) although the first health insurance programme that was open to any paying member was set up as early as 1761 (Edebalk 2005). The popularity of these programmes increased over time, but they left large parts of the population outside the system. For instance, in 1930, they only covered about one-fifth of the adult population (Edebalk 2005). By that time, the arguments for universal health insurance were widely discussed. In 1919 a government committee proposed that a compulsory programme should be introduced. The proposal was rejected with reference to weak public finances, but it reappeared in the late 1930s, and eventually led to the introduction of a universal health insurance plan in 1955.

Apart from covering health care costs, it provided compensation for income losses: initially, after the first three days of illness, the compensation was about 55 per cent of the lost income. During the following decades, the rules were gradually made more generous, and by the late 1980s, the insurance covered 100 per cent of the income losses from the first sick day, with only a small reduction in benefits if the illness lasted for more than three months.

Although the generous health insurance benefits that developed during the 1970s and 1980s were commendable from a social perspective, they turned out to be very costly. During the 1950s, when benefit levels were relatively low, the average number of compensated sick leave days per worker was ten to 15 days per year. By the late 1980s, this had increased to over 30 days, in spite of great improvements in job safety and environmental conditions. This contributed to very substantial costs, not only in terms of insurance payments, but also in the form of lost production and lower growth rates. The accelerating costs triggered an intensive debate on the reasons for the apparent deterioration of public health and on the design of an optimal insurance system. Several

arguments have been proposed as explanations for the increased number of sick leave days. Some commentators have focused on increased stress and uncertain employment conditions. Others emphasize the changing composition of the labour force. Women and elderly have more sick leave days than young men, and the share of females and elderly in the labour force has increased steadily since the 1950s. There is also a well established relation between the business cycle and the number of sick leave days: when the economy is booming and unemployment is low the number of sick days increases.

However, maybe the most intensively debated issue concerns how the incentives for work are related to the level of compensation in the social security system. Henrekson and Persson (2004) analysed Swedish data spanning the period 1950–2000 and found a positive relation between the level of sick leave days and the compensation level. The question suggested by their findings is: what is the optimal level of sick leave compensation? If the compensation is too generous, it may contribute to a climate where it is considered more or less 'normal' to take sick leave even for minor ailments. On the other hand, a low compensation level may force workers to drag themselves to work although they are ill, thereby weakening their own health and passing on infections to their colleagues. In the Swedish case, there was a substantial reduction in the compensation level in 1991, and frequent changes in the rules between 1993 and 1998. These adjustments reflect both the fact that health insurance is politically sensitive, and that health expenses constitute a heavy burden on public finances. Hence, the benefits have been less generous when the public budget has been under pressure (in particular, during the financial crisis in the early 1990s), but attempts have been made to restore compensation levels when the financial situation has been less severe.

4 Lesson and conclusions

The Swedish model of economic development—the combination of an efficient and knowledge-intensive market-oriented economy and an active welfare state—has received much attention in the international debate as a possible 'middle way' providing both efficiency and equity. This paper has described some of the roots of the Swedish model, outlining the evolution of both industry and welfare state in Sweden over the past two centuries. Two broad conclusions emerge from the analysis.

First, the initial success of Swedish industrialization and the subsequent development of industrial competitiveness are largely the results of intentional policies and strategies implemented by the state and individual companies. By investing heavily in institutional capacity, knowledge, and skills, Sweden has created the capacity to take advantage of new opportunities and to adjust to changing conditions in the global market. The policy lessons from these experiences are clear. Countries aiming for growth and sustainable development—or just to maintain their relative competitiveness in the international market—need to invest continuously in institutional and human capacity. When opportunities arise or market conditions change, it is mainly the actors that have *excess capacity* who are able to respond positively to the changes.

Second, while the need for a welfare state was clear at an early stage of industrialization and development—to balance the increased risk and uncertainty when household-based production systems were replaced by urban industrial systems—it took a long time to construct a comprehensive welfare state. The development of the various components of the welfare state was gradual, and closely related to both needs and financial capacities. The earliest components of the welfare state, such as compulsory education and

insurance schemes, were closely connected to the industrialization process itself: literacy, insurance for work-related accidents, and unemployment insurance are necessary for successful industrial development. Subsequent developments were largely driven by political pressures. The socialist revolutions in Eastern Europe after the First World War had a strong impact on the political climate in Sweden, and contributed to a stronger emphasis on the public provision of social welfare. The early welfare state was not very generous because of the limited financial resources of the state, but the level of benefits increased from the 1950s and onwards, as the rapidly growing economy made the country more prosperous. Later on, after the 1980s, changing demographic and economic conditions have mandated an adjustment in the opposite direction: benefit levels have been adjusted downwards because of the mismatch between limited tax revenues and increasing costs for health care and pensions.

To be useful for the policy debate in today's developing countries, these two conclusions need to be complemented with some additional questions: why did the Swedish state begin to build institutional and human capacity already before it was absolutely necessary? In other words, why did the Swedish state become a 'developmental state' long before the term was established in the academic discourse? Why did the Swedish welfare state become so comprehensive, when other European countries, which faced similar industrial and political pressures, chose to invest much less on social welfare? How has the Swedish population come to accept the high tax rates required to sustain the welfare state?

Discussing the motives for the institutional changes during the 19th century, Myhrman (1994) argues that an important reason was the spread of liberal ideas in Swedish politics that had started already in the late 18th century. The period 1772–1809 was characterized by absolute monarchy, restrictions on public debate, and two major wars with Russia. The wars were not only unsuccessful from a military and political perspective—for instance, Finland was lost to Russia in 1808–9—but the large public expenditure for the wars also led to high inflation and economic chaos. The dissatisfaction with the monarch led to a *coup d'état*, the appointment of a new king, and a new constitution. This new constitution stipulated a division of power between the monarch and the *Riksdag*, the Swedish parliament, and drew on ideas from the American and French revolutions. It also gave more political influence to interest groups promoting liberal ideas and commercial ambitions. Many of the institutional reforms introduced during the following decades seem to have been driven by comparisons with the leading industrial nations in Western Europe: if it could be done in England, then why not in Sweden?

While some developments were based on the existing domestic institutional framework, there were also cases where foreign solutions were imported. One example is the expansion of science and technical education, where the French and German models, already introduced at the end of the 18th century, provided much of the inspiration. Interpreting these events in light of the current debate on innovations and knowledge management, this may be described as an early example of benchmarking.

Regarding the development of the welfare state, the perhaps most important characteristic is its universal nature: many benefits are available on equal terms to all residents. As noted above, this principle was established already in the old age pension programme of 1913, and has characterized most of the developments since that time. By defining universal benefits, it has not been necessary to identify those groups that are

considered particularly weak or vulnerable. This has made it possible to avoid a polarization of the population into those that pay for social security and those that draw on the benefits of the system. Instead, all residents are net payers during some part of their life cycle, and net beneficiaries at other times. It has also been important for creating acceptance for the increasing tax burden that is needed to finance public welfare: people have largely been prepared to pay their high taxes as long as they have felt that their social welfare needs were met.

To explain why Sweden chose to focus on universal benefits, Kuhnle and Hort (2004) point to several contextual factors that have favoured universalism. These include early institutional structures, cultural homogeneity, and the egalitarian pre-industrial society. The fact that the church and state had been merged since the 1500s meant that the early social welfare programmes, which had traditionally been managed by the church, were easy to integrate with the state's new programmes. In other parts of Europe, it was less clear how the division of labour between the church (or between several different churches) and the state should look.

Cultural homogeneity made it difficult to exclude any particular population group from welfare programmes. The traditionally strong independent peasant class also contributed to broad solutions that did not exclude any large population groups. The farmers' party had substantial political influence in the early industrial era, and blocked welfare programmes that would have had an exclusive focus on industrial workers.

Rojas (2005), Carroll and Palme (2006), and Palme (2009) also emphasize these historical roots of universalism. In particular, they note that the Social Democrats needed the support of the Agrarian Party when they took power in 1932 (subsequently, Sweden was governed by the Social Democrats until 1976). One consequence of this political union was that the broader welfare programmes that were designed during the 1930s became universal. Rojas (2005) also points to an even more important consequence of the need to compromise with agrarian interests. He argues that the Swedish Social Democrats gave up the ambition to socialize productive capital, and instead decided to balance the power of the capitalists by focusing on social welfare provided through the state. The capitalists were welcome to 'rule in their industrial castles … but elsewhere the Party and the Movement would rule' (Rojas 2005: 22). Hence, the egalitarian welfare state replaced old visions of the socialist economy or command economy as the objective and ideal of Swedish Social Democracy.

This observation motivates a third broad conclusion from the Swedish experience of growth and development. It is hard to overestimate the importance of social stability. Although the first decades of the 20th century were characterized by a struggle between labour and capital, it resulted in a broad political compromise that has survived to the present. The outcome has been an unusual degree of political stability, where the overall character of society is not likely to change much even if political power shifts from one of the main political parties to another. This stability, in turn, guarantees that the rules of the game are predictable and that the degree of uncertainty for long term investors is low.

To what extent can today's developing countries aim to replicate any of these experiences? It is clear that many of the policies used to create capacity for industrialization and competitiveness are well within the reach of many developing economies. Investments in institutional capacity and human capital are not

controversial, and the argument that investments should be made before they are acutely needed is powerful. Benchmarks are also readily available, both in the form of historical experiences from developed nations and current models from relatively successful developing economies, e.g. in East Asia. The political decisions needed to establish the foundation for a welfare state are more difficult to replicate. However, a key decision seems to be the one between targeted and universal benefits. Swedish experiences indicate that universal welfare programmes do not necessarily lie beyond the means of poor countries: the benefit levels can be adjusted to available budgets. Moreover, the returns from universal systems can be substantial, particularly if they contribute to reducing tensions between social groups and establishing conditions for more predictable long term policies.

References

Ahlström, G. (1992). 'Technical Competence and Industrial Performance: Sweden in the 19th and Early 20th Centuries'. *Lund Papers in Economic History*, 14. Lund: Lund University.

—— (1993). 'Industrial Research and Technical Proficiency: Swedish Industry in the Early 20th Century'. *Lund Papers in Economic History*, 23. Lund: Lund University.

Carlsson, B. (1980). 'Jordbrukets Roll vid Sveriges Industrialisering'. In E. Dahmén and G. Eliasson (eds), *Industriell Utveckling i Sverige*. Stockholm: Almqvist & Wicksell.

Carroll, E., and J. Palme (2006). 'Inclusion of the European Nordic Model in the Debate Concerning Reform of Social Protection'. Financimiento del Desarrollo Series 168. Santiago de Chile: ECLAC.

Departementsserien (Ds) (1991). *Kunskap för Konkurrenskraft—Skogsindustrins Kunskapsförsörjning*. Stockholm: Ministry of Industry.

Edebalk, P. G. (2000). 'Emergence of a Welfare State—Social Insurance in Sweden in the 1910s'. *Journal of Social Policy*, 29 (4): 537–51.

—— 'Hur Skall vi Betala Framtidens Äldreomsorg?'. In H. Jönsson (ed.), *En Kompanjonbok till Forskningsetik och Perspektivval*. Lund: Studentlitteratur.

—— (2005). 'Sjuklön och Sjukpenning – 1955 Års Sjukförsäkringsreform och Sjuklönefrågan'. Working Paper 2005: 04. Lund: Lund University, Socialhögskolan.

Edvinsson, R. (2005). 'Growth, Accumulation, Crisis: With New Macroeconomic Data for Sweden 1800–2000'. PhD thesis. Stockholm: Stockholm University, Department of Economic History.

Erixon L. (2001). 'A Swedish Economic Policy – the Theory, Application and Validity of the Rehn-Meidner Model'. In H. Milner and E. Wadensjö (eds)., *Gösta Rehn – At Home and Abroad*. London: Ashgate.

Eurostat (various, years, various issues). *General Statistics*. Luxembourg: European Union.

Haavisto, T., and A. Kokko (1991). 'Finland'. In M. Blomström and P. Meller (eds), *Diverging Paths: Comparing 100 Years of Scandinavian and Latin American Development*. Baltimore: Johns Hopkins University Press.

Hallvarsson, M. (1980). *Industrialismens 100 År*. Stockholm: Sveriges Industriförbunds Förlag.

Henrekson, M., and M. Person (2004).'The Effects on Sick Leave of Changes in the Sickness Insurance System'. *Journal of Labor Economics*, 22 (1): 87–112.

Kangas, O., and M. Palme (1989). *The Social Citizenship Indicators Register*. Stockholm: Stockholm University, Swedish Institute of Social Research.

Kangas, O., and J. Palme (eds.) (2005). *Social Policy and Economic Development in the Nordic Countries*. New York, NY: Palgrave Macmillan.

Kokko, A. (2005). 'Excess Capacity in Swedish Industrial Development'. *International Journal of Learning and Change*, 1 (1): 122–40.

Kokko, A., and P. Tingvall (2008). 'The Welfare State'. In A. Kokko (ed.), *Vietnam: 20 Years of Doi Moi*. Hanoi: The Gioi Publishers and Vietnam Academy of Social Sciences.

Kuhnle, S., and S. E. O. Hort (2004). 'The Developmental Welfare State in Scandinavia: Lessons for the Developing World'. Social Policy and Development Programme Paper 17. Geneva: UNRISD.

Larsson, M., and U. Olsson (1992). 'Industrialiseringens Sekel'. In *Sveriges Industri*. Stockholm: Industriförbundet.

Larsson, M. (1991). *En Svensk Ekonomisk Historia 1850–1985*. Stockholm: SNS Förlag.

LIF (2004). *FAKTA*. Stockholm: Läkemedelsindustriföreningen.

Lundvall, B.-Å. (1992). *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter.

Ministry of Health and Social Affairs (2005). 'Health and Medical Care in Sweden'. Fact Sheet 15, May. Stockholm: Government Office.

Myhrman, J. (1994). *Hur Sverige Blev Rikt*. Stockholm: SNS Förlag.

Nilsson, A., and B. Svärd (1991). 'The Quantitative Development of Vocational Education in Sweden 1950–1990'. *Lund Papers in Economic History*, 12. Lund: Lund University.

OECD (2002). *Health Data*, 4th edition. Paris: Organisation for Economic Cooperation and Development.

—— (2005). *Health at a Glance: OECD Indicators—2005 Edition*. Paris: Organisation for Economic Cooperation and Development.

Olofsson, J. (1997). 'Ekonomporträttet: Jacob Lundell (1813–1852)'. *Ekonomisk Debatt*, 25 (6): 369–73.

Palme, J. (2009). 'Making Social Policy Work for Economic Development: The Nordic Experience'. *International Journal of Social Welfare*, 18: S62-S72.

Rojas, M. (2005). *Sweden after the Swedish Model: From Tutorial State to Enabling State*. Stockholm: Timbro.

Ronne, B. (1996). ‘Relevans för Skogsnäringen av Verksamhet som Bedrivs vid den Skogsvetenskapliga Fakulteten’. Mimeo. Uppsala: Swedish University of Agricultural Sciences, Faculty of Forest Sciences.

Sandberg, L.-G. (1979). ‘The Case of the Impoverished Sophisticate: Human Capital and Swedish Economic Growth before World War I’. *Journal of Economic History*, 39 (1): 225–41.

Schön, L. (1982). *Industrialismens Förutsättningar*. Malmö: Liber Förlag.

Socialstyrelsen (2001). *Folkhälsorapport 2001*. Stockholm: Epedimologiskt Centrum, Socialstyrelsen.

Statens Offentliga Utredningar (SOU) (2001). *Välfärdens finansiering och fördelning*, 2001: 57. Stockholm: Fritzes.

Statistics Sweden (various years, various issues). *National Accounts*. Örebro: Statistics Sweden.

—— (2004). *Statistisk Årsbok för Sverige 2004*. Örebro: Statistics Sweden.

—— (2005), ‘Statistiska Meddelanden’. SM 0501. Örebro: Statistics Sweden.