

# Knowledge Capital and Economic Growth: Sweden as an Emblematic Example<sup>1</sup>

Pontus Braunerhjelm

Linköping University and  
The Center for Business and Policy Studies  
Sköldungagatan 2, Box 5629, 11486, Stockholm, Sweden  
pontus.braunerhjelm@sns.se.

## 1. Introduction

Sweden is often taken as an example of a knowledge driven economy: a leading R&D spender since at least a couple of decades, top rankings in scientific publications, universities with a solid international reputation – particularly in the medical and technological fields. In addition, Swedish industry endorses a disproportional large share of successful multinational corporations (MNCs) with a strong global position: AstraZeneca, Atlas Copco, Ericsson Gambro, Sandvik, Scania and Volvo, to mention a few.<sup>2</sup> In the latter part of the 1990s, when Sweden seemed to be on the brink of entering the so called ‘new economy’, these established and well-known MNCs were complemented by a seemingly vibrant technology-based entrepreneurship, foremost in the information- and communication technologies (ICT). Hence, there are a plenty of indications pointing at Sweden being an advanced and highly knowledge intensive economy.

According to contemporary growth theory, such comparatively strong knowledge endowment should show up in strong growth performance (Romer 1986,

---

<sup>1</sup> I am grateful to Göran Marklund, Vinnova, who generously provided me with data used in the report “The Swedish National Innovation System 1970-2003” (2004), from which the current study has benefited.

<sup>2</sup> The Swedish firm Astra merged with British Zeneca in 1998 to become AstraZeneca. The Swedish part of Volvo primarily produces heavy trucks and buses, while the car division has been acquired by Ford.

1990). In fact, based on knowledge endowments Sweden's growth rate could be expected to outpace most other countries. Still, emblematic features of a comparatively strong knowledge base do not automatically translate into positive real economy effects. A striking, and intriguing, feature of the Swedish economy is the relatively poor growth performance in recent decades, and a marked slowdown as compared to the golden years 1870 to 1950.

The issue I raise in this chapter concerns the evolutionary contradiction between these two paths; on the one hand an impressive augmentation of the knowledge stock but on the other a growth pattern that has remained below the OECD-average for a long time. How do we explain 'growth-less' knowledge augmentation in an economy? To resolve this puzzle we have to examine the extent to which economic policies are designed to foster accumulation and upgrading of knowledge, as compared to creating incentives to exploit and convert knowledge into commercial products and services. Sweden has been successful in knowledge creation; however, less attention has been directed towards the mechanisms that promote knowledge exploitation. Doubtlessly Swedish economic policies have managed to provide a more stable macroeconomic setting; rather the weaknesses seem to pertain to microeconomic policy failures in providing a business environment predominantly geared towards knowledge intensive production.

The remaining of the chapter is organized in the following way. The first section contains a brief overview of growth theory. The next section discusses measurement problems as regards knowledge variables, followed by an international comparison of the Swedish knowledge base and growth performance. The subsequent section brings forward conceivable reasons for the Swedish growth performance and stresses the policy implications. The final section summarizes and concludes.

## **2. Growth: From Neoclassical to Endogenous Growth Models**

To achieve sustainable growth, policies have to embrace different but complementary parts of an economy. In particular, growth cannot be disentangled from the legal and institutional context of an economy (North and Thomas 1973, Rosenberg and Birdzell, 1986). The remarkable growth in Sweden between 1870 and 1950 was preceded by a number of important institutional changes; compulsory schooling was initiated in 1842, local monopolies (guilds) were abolished in 1846, whereas a new law for firms with limited liabilities was passed in 1847, followed 1862 by freedom of trade. Hence, the Swedish case illustrates the significance of the institutional set-up.

A major leap forward in understanding growth stems from the work by Solow (1956) and Swan (1956). In the neo-classical model steady state growth was attained as capital accumulated at a rate determined by the increase in the labour