Economic growth through entrepreneurship and innovation: key factors for success. The Israel high-tech case.

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Introduction

Innovation and Entrepreneurship have become buzzwords and seen as panacea for economic growth in developed economies, witness the EU Lisbon Strategy (2000, 2005) and the Innovate America report by Council for Competitiveness (2004)
The notion that innovation, knowledge and entrepreneurship are drivers for economic growth are not policy and political statements, but are well grounded in economic research. (Acs & Audretsch, 2003, Helpman, 2004, Audretsch & Keilbach, 2004, Traijtenberg, 2006)
Formulating and implementing policies which cause and encourage innovation and entrepreneurship on firm, regional, industry and national level are high national priorities (US Office of Science and Technology Policy, 2006). However difficulties in implementing those policies illustrate the complexity and multilevel, multivariable nature of the change process. Cases in point are the difficulties that the EU Lisbon 2000 and 2005 Strategies are facing.

The success of the high-tech sector growth in Israel constitutes an interesting case study for the interaction between technical innovation and entrepreneurship (Haour, 2005) and the contribution of government policy and support.

In the following, the Israeli high-tech case will be described and the development of the ICT sector will highlighted, based on a literature review, government and industry data and personal observations as a practitioner and presently academic researcher. Key success factors will be identified and described.
The self enforcement of these factors through their interaction on the firm, industry and regional/national level will be shown leading to a tipping point and sustainable growth. Finally policy implications will be discussed.

The high-sector growth in Israel.

After two decades of rapid growth, the Israeli economy reached an impasse in the 1970s and the Israeli government made a crucial strategic decision to breed a "science based" sector, by providing broad financial and policy support for commercial R&D. The results are impressive: the high-tech sector grew from 5% of the GDP in 1990 to 14% in 2000 contributing a third of economic growth, Israel stands at number 4 in terms of patents per capita after the US, Japan and Taiwan, and it has 4,6% R&D as percentage of GDP in 2004, the highest in the world. The venture capital sector became the second largest in the world after the US (Traijtenberg, 2006) and Israel has 68 companies traded on NASDAQ, third after the US and Canada. It is estimated that 2600 young technology companies currently provide employment for 120.000 persons (Haour, 2005).
As a result of government support and market attractiveness, the influx of scientists and engineers into the labor market grew tremendously (460% between 1968-1984, Gradus et al, 1993).

Presently Israel has 140 scientists and engineers per 10.000 working population compared with 83 in the US and 60 in Germany. (Ministry of Trade and

Industry, Israel) and it scores second on the IMD Entrepreneurship Index (IMD World Competitiveness Index-2004/5)

Key factors for success and their required interaction on different levels
In the following we will describe how the Israeli high-tech sector evolved and what was the contribution of each of the following factors and their references to Entrepreneurship and Innovation literature.

- human capital
- entrepreneurial orientation, legitimization and education
- knowledge capabilities and spillovers between firms and public research organizations and between incumbent companies including multinationals and start-ups
- the spillovers from the defense to the civilian sector
- social networks and communities
- outward and export orientation
- attraction of risk capital
- supporting government policies

We will show that each of these factors separately is a key condition for success but also their interaction and mutual reinforcement on firm, industry and regional/national level.

Discussion and policy implications.
The possible applications of the Israeli case on other regions will be discussed. Reference will be made to comparative studies of the ICT ands Semiconductor industry in Israel, Ireland and Taiwan. Policy recommendations for economic growth through innovation and entrepreneurship will be made.

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